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ABSTRACT

This study argues that environmental problems occur because people decide to act in their world in ways harmful to it and to themselves. Such decisions occur because people are in some cases ignorant of the consequences of their choices for themselves and their environment. They are not aware of the alternatives open to them because they have learned to choose, to value, in specified ways which they do not question. The study also argues that humanism, a deep caring for other people, is essential for environmental education. An Experiential Humanistic Environmental Education (EHEE) model and rationale for it are presented with illustrations of how the approach can assist educators in achieving environmental education goals. Topics addressed in the study include: a world macroproblem; suggestions for coping with the macroproblem; how education might respond to the macroproblem; review and assessment of education's response; humanistic education and its contribution to environmental education; experiential learning in environmental education; the EHEE connection; examples of EHEE; suggestions for making the EHEE connection; and summary/conclusions. (Author/JN)

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A Description and Rationale

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of the Requirements for the Degree
Doctor of Philosophy

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SECTION I

INTRODUCTION

The first section of this study provides background for several proposals for the development of environmental education. It is necessary, before suggesting innovations in environmental education, to assess what is already being done in the field. And in order to prescribe an educational response to the problem, the problem itself needs to be described. The four chapters in this section attempt to present a particular perception of the problem to which environmental education is a response and to summarize the potential and reality of education's response. These few pages cannot do a complete job of this, for many books have been written describing the problems and prescribing solutions. A few works have been published in the field of environmental education, though the field and its literature are young and immature. All that is possible here is to orient the reader to the views of the environmental problems and responses to them that have led to the specific orientation toward environmental education that will be described in the later sections of this study.

CHAPTER I

A CHALLENGE FOR EDUCATION: THE WORLD MACROPROBLEM

The first step in this study is to describe the environmental problem to which education is trying to respond. A comprehensive description is not possible, but an overview can be presented. The importance of a clear view of environmental problems for the educator framing a response is obvious, yet such a view can be difficult to achieve because of the great scope, complexity, number and interaction of these problems. There is not even universal agreement as to exactly what the problems are. And some people classify problems as "environmental" which others do not. Defining the problem, then, is not as easy as it perhaps at first seems to be.

A very useful description of the problem was offered several years ago by Harman. He called it the "world macroproblem" and defined it as "the composite of all the problems that have been brought about by a combination of rampant technology application and industrial development, together with high population levels. . .(1)." These many problems he cast into three groups, the first of which was "problems of the ecosystem" such as ecological imbalances, environmental pollution , resource depletion, and overpopulation. The second category, less readily identified as environmental problems by many observers, he called the "have/have-not" gap. He referred here to the problems of inequity in the distribution of wealth which have recently emerged clearly into public consciousness as "have-not" nations have demanded equity and in some cases organized themselves into cartels to control the flow of essential and scarce natural resources to "have" nations. Harman expects the gap to increasingly affect politics and create dissension as resource depletion progresses and industrial society continues to expand.

The third group of problems comprising the macroproblem Harman calls "technological threats." These include the threats of modern armaments, the increasing capability for "engineering" the human body, mind, foetus, and genetic transmission, and the stresses associated with complex living. Humans have developed remarkable tools, and some of these have the capacity for great intentional destruction and severe unintentional damage through the "side-effect" phenomenon. Side effects are unintended consequences of the application of technology, and they can sometimes be very damaging, as in the much publicized example of thalidomide.

Pesticides: An Ecological and Ethical Problem

The issue of pesticides provides one example. Since humans began to domesticate plants, there have been pests. These were animals, fungi, plants, bacteria and viruses that damaged the crops people were trying to grow. For almost nine thousand years little progress was made in controlling pests until scientific study produced understanding and technology that was helpful for developing effective pesticides. In the 1840's the vine powdery mildew pest was controlled in Europe through applications of lime sulfur to the infected plants, and the chemical attack on the pest problem was underway (2). During the ensuing century both pest problems and ability to cope with them increased. The problems increased because technological innovation led to industrialization which drew people from the countryside into large cities. Greater agricultural efficiency was necessary to feed the city dwellers which led to mechanization and intensification and specialization in farming. Mass production became profitable on the farm, and huge fields bearing a single plant species appeared. This created ideal conditions for the pests who used that plant. If the pests prevailed in this situation, severe financial losses could ruin farmers.

The applied science of economic entomology arose to cope with this situation, and chemists developed compounds, mostly arsenicals, to control the pests. Success was achieved in many instances, but not without incurring various risks. Arsenic pesticides damaged plant foliage. Farm animals were poisoned, and apiculture suffered severe losses. Many physicians believed that chronic arsenicism occurred in humans as a consequence of pesticide application and human ingestion in small quantities, but this was difficult to prove. Agriculturalists were pleased with the control being achieved, the associated problems seemed relatively minor, and the search was pressed for more complete pest control methods.

In 1942 a Swiss scientist discovered the insecticidal properties of a synthetic chlorinated organic chemical first synthesized in 1874. It was called DDT (dichloro-diphenyl-trichloro-ethane) and was very toxic to insects (3). During World War II DDT was very effective in controlling body lice and fleas, stopped the typhus epidemic in Naples, and proved to be a breakthrough in broad scale insect pest control. The war also produced another powerful group of insecticides, the organophosphorus compounds, which were low cost and effective but toxic to humans and warm-blooded animals.

The future for pest control and increased agricultural production looked bright in the decade after World War II. It seemed that the battle had been won and almost any pest, disease, or weed problem could be solved by chemical treatment. Crop losses were cut and insect-vectored human diseases such as malaria were brought under control, with millions of human lives saved (4). Then, in the 1950's, problems began to appear.

Pesticides vary greatly in their toxicity, persistence and solubility, and it was the chlorinated hydrocarbon compounds like DDT that emerged as severely disruptive of ecosystems. While they were applied to control a single pest species, they were non-specific and affected whole ecosystems. Persistent and fat soluble, they became widely dispersed and concentrated in food chains. Sublethal effects on reproduction and behavior severely affected populations of vertebrates at high trophic levels and were ecologically significant, and reduction in species diversity often occurred increasing the instability of ecosystems (5). Perhaps most troublesome was the phenomenon of resistance wherein the process of natural selection resulted in pesticide-resistant strains of pest species (6). This last effect of chemical pest control was of great significance because it indicated that the broad-scale chemical approach to pest control was worsening the problem in the long run. The prospect was for an escalation of chemical warfare against pests, with continuing alteration of ecological communities, increased expenditure of capital on pest control, and a continuing potential for ecological and human health problems.

Rachel Carson published her expose' of the pesticide situation in 1962. She described the problems associated with chemical pesticide use, and counseled caution.

> It is not my contention that chemical insecticides must never be used. I do contend that we have put poisonous and biologically-potent chemicals indiscriminately into the hands of persons largely or wholly ignorant of their potentials for harm. . .I contend, furthermore, that we have allowed these chemicals to be used with little or no advance investigation of their effect on soil, water, wildlife, and man himself. Future generations are unlikely to condone our lack of prudent concern for the integrity of the natural world that supports all life (7).

She did not argue that chemical pest control be abandoned, for clearly agriculture had become so dependent on the chemical approach that to drop the approach would be disastrous economically and result in significant reduction in some types of agricultural output. Rather, she argued that agriculture might try to gradually wean itself from its total dependency on chemicals, while turning its attention to a search for alternatives.

Carson's book Silent Spring was met by a storm of protest from the agricultural and chemical industries. The response to the book, both pro and con, is described in some detail in Frank Graham, Jr.'s Since Silent Spring, the industrial response being especially interesting.

> The chemical and agricultural industries saw Silent Spring not as a scientific challenge but as a public relations problem. Their champions in the scientific world. . . attacked the book on much the same ground that, a century before, Louis Agassiz had challenged Darwin's Origin of Species: 'A scientific mistake, untrue in its facts, unscientific in its method, and mischievous in its tendencies (8).'

Yet the book held up under criticism. While some minor inaccuracies were found, the essential message of the book was clear and correct (9). Rudd defined the essence of the book in his review of it when he wrote, "Silent Spring is a biological warning, social commentary and moral reminder. Insistently she calls upon technological man to pause and take stock (10)."

The publication of Silent Spring and the response to it are significant because they reveal important qualities of many environmental problems today. Problems occur as side effects to useful applications of technology. Once the usefulness of a technology is established it often is incorporated into marketable products which are mass-produced. These products become established, involve jobs in their production and distribution, and are enjoyed by consumers. They become difficult to remove from the marketplace, except when they constitute a clear and immediate human health hazard, as determined by the Food and Drug Administration, the Environmental Protection Agency, or some other regulatory agency. In the case of pesticides, it has taken two decades to limit use of the most harmful chlorinated hydrocarbon pesticides in the United States.

The pesticide controversy illustrates also the presence of the "expert syndrome," the premise that the "summed knowledge of experts constitutes wisdom (11)," which in the case of pesticides it did not. It also illustrates the problem of communication between scientists and the laypeople who utilize the products of scientific information. Frank Egler has studied the problem of communication of scientific knowledge as it occurred with the pesticide issue. He notes:

> What has developed. . .is not only the feebleness of an existing science of ecology, but also. . .the very disturbing inability of this ecologic knowledge to communicate itself to other parts of the human ecosystem once it does exist. And finally, there is the even more disturbing flood of literature supported by special "experts" who speak from their one-strand vantages on the ecosystem web (12).

People base their action on what they think is "right" for them in a circumstance. Their definition of "right" is molded to some extent by knowledge of risks and benefits. The inadequate information flow described by Egler in the pesticide case led to a problematical ecological situation. Thousands and perhaps millions of people make decisions on the basis of desire, opinion and knowledge, and in the case of pesticides their numerous micro-decisions added up to a macroproblem which might have been prevented had scientists and technologists defined and exercised a moral obligation based on ecological knowledge. This inadequate ecologically ethical and moral stance underlies many environmental problems. Such an ethic, even at the current limited level of ecological understanding, counsels prudence, which is foresight and caution, as Rachel Carson argued. An ecological approach to science and a prudent technology will reflect a human modesty and humility that is essential to avoidance of environmental problems. Such modesty and prudence was lacking in agricultural scientists and technologists who sought and applied pesticides. Paul Goodman has written:

> Immodesty is always a danger of free enterprise, but when the same disposition is financed by big corporations, technologists rush into production with neat solutions that swamp the environment (13).

The pesticide episode in technology demonstrates immodesty, which is one primary human condition that has led to the world macroproblem.

This pesticide episode reveals the following attributes of the macroproblem:

- It is ecological and occurs because the natural world is an interconnected system, yet is not perceived as such by many people.

-- It involves the interaction of population growth and technological development and application. Technologies such as those of agricultural chemistry emerge to improve crop yields to feed a growing population. Difficulties result from the application of the technology, as described by Carson and others.

-- It emerges from actions taken with only good objectives in mind. Pesticides help produce better crops, contribute to higher profits, and save lives. Yet they damage ecosystems. The "side effects" negate some of the good and many students of the problem feel that the long-term costs of current actions such as heavy application of chemicals in pest control may far outstrip short- and long-term benefits (14).

-- It involves problems of value. Choices are made for one value over another, as in the case of choosing to spray a commercially-valuable forest with DDT despite evidence of damage to breeding stocks of birds of prey (15). The choice is for commercial values over ecological values.

-- It occurs in part because of the operation of the "technological imperative" which contends "that any technology that can be developed, and any knowledge that can be applied, should be (16)." This is the opposite of Goodman's prudence.

-- There is inadequate flow of necessary knowledge and information available for ecologically responsible decision-making (17).

-- It is a consequence of the mistaken belief that humankind is separate from nature and can transcend its rules, and from the belief that humans can control nature.

The pesticide case illustrates, in summary, that many humans believe themselves to be living by different rules than the rest of nature. It seems that they believe that they can establish or bend the rules of the game of life to their values and purposes, though nature indicates otherwise. Despite the contrary indications, many believe what they wish to, continuing with business in blind indifference to growing problems until these problems become so large that they cannot be ignored.

The World Food Problem

Another set of problems illustrate other dimensions of the macroproblem. This is collectively referred to as the world food problem. The population of the world is growing rapidly. World population as of mid-1977 was estimated to be 4,083 million and growing at a rate of 1.8 percent annually. If this rate were to continue for 38 years, the world population would double (18). This rate of population increase is not uniform worldwide. The population of the United States, for instance, was increasing in 1977 at the annual rate of 0.6 percent, while that of India was 2.1 percent, of Ethiopia 2.5 percent, of Brazil 2.8 percent, and of Mexico 3.5 percent. The rate of growth in recent years seems to be slowing from a peak around 1970, but the arithmetic of growth remains frightening (19). In 1976 world population increased by 64 million, or 178,000 people per day (20). Such an absolute increase in people to feed illustrates the simple arithmetical population aspect of the world food problem.

This increase in demand for available food results in a problem of several dimensions. People must be provided quality diets, which means enough calories and nutrients. Systems must be developed to store, transport and distribute food. People must have enough money to be able to purchase food of sufficient quality and quantity. Finally, food production must be increased without irreparable degradation of the environment.

Food production has nearly doubled between 1950 and 1975, but constraints that will slow future growth in production have appeared. Land under cultivation has expanded, providing some growth, but increases in the productivity of land already under cultivation account for most of the growth in food supply (21). The Green Revolution developed and introduced high-yield varieties of wheat and rice, expanding production of those grains. In addition, increased fertilizer use and agricultural use of energy for mechanical power led to a steady rise in cereal yield. The world's fish catch tripled during this period with intensified fishing and improved technology. Fish are a source of high protein, as are beef cattle and soybeans. Cattle herds have expanded, and soybean production increased.

The mid-seventies, however, has been a time of slowing growth in food production. Most good cropland has been brought under cultivation, and expansion into new cropland will require expensive fertilization and irrigation. The growth in yields per unit cultivated has been interrupted because marginal land has been brought into production, energy and fertilizer costs have risen, fallow cycles have been shortened in order to produce more crops resulting in lowered cropland fertility, and increased topsoil erosion has occurred (22). The rise in fish catch in general has slowed in recent years and has dropped in terms of per capita catch. Expansion of the world's cattle herd has led to extensive overgrazing, and high grain prices have reduced the amount of grain fed to cattle thus reducing the potential of herd expansion in feedlots. Despite these and other constraints, there is unrealized food production potential, the greatest obstacles to which are political (23). Land settlement and ownership patterns and food price policies reduce farmers' incentives to innovate and invest in the Third World countries where the potential exists. Lester Brown summarizes the situation that emerges from all of this as follows:

> . . .the conditions under which the world's farmer and fishermen will attempt to expand output during the final quarter of this century are less favorable than conditions of the past. . .. Barring some dramatic increase in the priority given family planning and food production, a future typified by more or less chronic scarcity enlivened only by occasional surpluses of a local and short-lived nature appears to be in store. The steady rise in food production costs, a rise associated with the employment of marginal land and low-grade water resources, may make global inflation progressively more difficult to manage. At the same time, the international community's failure to respond effectively to crop shortfalls in poor countries may make severe nutritional stress and sporadic rises in death rates more common (24).

This summary of the population and food supply situation reveals a world condition in which hunger in the form of undernutrition and malnutrition is a severe problem, but that is only part of the story.

Distribution of wealth is an important factor in the hunger problem, and that distribution is quite uneven around the world. Wealth is necessary to grow or buy food and the parts of the world with food supply problems are short on wealth, as the following table illustrates.

FIGURE I

POPULATION, INCOME PER CAPITA AND TOTAL INCOME 1970 IN U.S. $ WITH PURCHASING POWER (P.P.) IN POOREST COUNTRIES, WORLD AND FOUR GROUPS OF COUNTRIES

	World	Third World countries[a]		Industrialized countries[b]	
	(1)	Total world (2)	Poorest tenth world (3)	Total world (4)	Richest tenth world (5)
Population (mlns)	3,667	2,588	368	1,089	368
Total income billion $	1,526	490	31	925	405
Income/capita 1970 U.S. $ per person	415	190	85	1,010	1,100

[a] Countries included in lower decile: Afghanistan, Burma, Chad, Dahomey, Ethiopia, Indonesia, Malawi, Mali, Nepal, Niger, Pakistan + Bangladesh (part), Rwanda, Somalia, Upper Volta, Yemen Arab Republic, Zaire.

[b] Countries included in upper decile: Belgium (part), Canada, Denmark, France, Norway, Sweden, Switzerland, United States, West Germany.

Note: Incomes in 1970 U.S. $. Incomes of richest countries divided by 2.25 as a correction for higher price level and for duplication (Tobin-Nordhans) and corrected for price level difference (David 4/9 rule).

Source: Trends in Developing Countries, World Bank, Washington, 1973 (25).

Nearly half of the world's people live in poverty, and some 900 million people are estimated to live on incomes of less than $75 a year. The disparity in annual incomes ranges from close to seven thousand dollars in the United States to a hundred dollars a year or less in countries like Indonesia and Zaire (26). Income differences are only a crude economic indicator, but when incomes are very low nearly all personal income must go for food, which puts millions of people in a precarious position in a world of fluctuating food prices. The disparity between good and inadequate nutrition in the world corresponds rather closely with income levels. Lester Brown notes,

> The wide differences in food consumption among societies is perhaps the most troubling social disparity between rich and poor. Per capita grain use, a useful indication of dietary quality, varies from less than 200 kilograms per year in some countries to more than 700 kilograms in a few of the more affluent areas (27).

The food problems of the world's poor have been exacerbated in recent years by exploitive economic development. Bad weather in many parts of the world in the early 1970's reduced food production in many parts of the globe. Population grew rapidly, world food demands increased, and world grain reserves dwindled. This shortage led to price increases on world grain markets, and many poor people were priced out of basic foodstuffs. This was also a period of increased inflation in industrialized countries and prices of agricultural equipment rose. Prices of pesticides, herbicides, and seeds rose, as did that of oil, very important as an energy input in industrialized agriculture. Shortages of natural gas led to increases in fertilizer prices (28). All of this further contributed to price increases in food.

People in rich nations contribute to this food problem through their consumption patterns. As Tinbergen and his colleagues note, between 1951 and 1971 world grain production doubled, and at least one-third of the increased demand during that period reflected increases, not in population, but in the diet of affluent countries (29). North American per capita consumption of cereals rose from 1,000 pounds yearly to nearly 1,900 pounds. Only a small fraction of this grain was eaten directly, the remainder being consumed indirectly in the form of meat, milk and eggs. Thus do affluent eating habits contribute to growing demand and higher prices.

Additionally, wealthy grain producing countries like the United States produce and sell grain so as to maintain price levels and insure economic stability and growth at home. They essentially control the market by regulating grain supply and thus intentionally keep prices high. In this way the affluent standard of living in developed countries is maintained at the expense of the developing countries.

All of the responsibility for hunger in the Third World cannot, however, be laid at the door of affluent nations. Third World countries have added to the problem in many ways. For example, leaders in some developing nations have not given food production for domestic use high enough priority, preferring instead to put scarce capital into "prestige" projects. India's investments in nuclear technology provide a case in point. Developing nations, in their desire to industrialize and command a greater share of world trade, have sought to produce capital by growing cash crops for the industrial world rather than devote their agricultural lands to produce food. And some have pursued policies designed to pacify urban constituencies which have kept domestic prices of agriculture so low that farmers have had no incentive to increase production (30).

This summary of the world food problem, and it has little more than touched the surface of this extremely complex issue, reveals several attributes of the macroproblem that were not evident in the pesticide case. The following attributes emerge:

-- Rapid population growth underlies many problems.

-- A growing population increases demand for scarce resources, driving up prices and increasing rates of depletion.

-- It is a problem of approaching limits. Food supply is rapidly becoming a constraint to population growth and in some respects to economic growth as well.

-- There is a problem of equity, and this problem is the consequence of an entrenched world economic system which is resistant to change.

-- Economic interdependence is a feature of the modern world, and it is an interdependence among unequal partners.

-- It is a problem of complex ethical importance. What is the responsibility of the haves to the have-nots? How should this responsibility be carried out?

-- It is a world problem and not confined to regions or localities.

-- It is a social problem in that biological and physical limits, as in food production, have not been reached, but social policy has created inequity, reduced incentive, and interfered with application of effective technique.

The goal of this chapter has been a summary description of the world macroproblem which reveals the major qualities of that problem. It emerges as a problem of ecological and social character. The popular conception of the problem is that it is one primarily biological and physical in nature, but clearly that is only partially the case. The actions of people, which derive from decisions based on individual and group values, are the source of the difficulties described as the macroproblem. It is truly a global problem of values and responsibility, for what people decide to buy in North America affects what people are able to buy in Southeast Asia or East Africa. It is not a problem that has recently appeared. It has been building through centuries as human groups have forged their conceptions of themselves and their world.

The two examples reveal the complexity of the macroproblem. It seems that people act with the best of intentions, to develop and apply technology which will improve their situation and that of other people. But many actions lead to problems because of limited knowledge and perspective in the actors. The problems are multidimensional: they are scientific in that natural systems are disturbed; they are social in that, as environments are disturbed, so are people, and these social problems involve economic and political factors; they are philosophical in that perceptions of the very nature of humankind and its place in nature, of purpose and value, are involved. In short, the macroproblem is ecological, extending throughout the fabric of natural and cultural systems. Efforts to cope with the problem must, it seems, extend to the foundation of belief and value that underlies the daily activity of contemporary people. Part of this effort may be undertaken in education, which is an important contributor to the construction and maintenance of the belief and value system that perpetuates the world macroproblem briefly summarized here.

Footnotes

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CHAPTER II

SUGGESTIONS FOR COPING WITH THE MACROPROBLEM

It is not possible to propose a comprehensive solution to the world macroproblem as such because of its composite nature. Solutions to individual problems comprising it are much easier to visualize, but attending to each problem separately is not likely to result in effective solution of the whole. The idea of the composite problem is useful for the assistance it gives in envisioning the valuative, conceptual, and structural changes in world societies that seem necessary for successful coping with modern environmental stresses. As with the proverbial forest and trees, preoccupation with the details of coping with many separate but related problems may interfere with the necessary business of examination of the comprehensive problem. People may believe when they design and implement a program to alleviate hunger in a region, rehabilitate a river, or control a pest species in an ecologically benign way, that they are solving the macroproblem, but their solution may not recognize the need for underlying change in thought and action which will solve problems in the long term and assist in coping with related problems. What general prescriptions for coping come from study of the whole problem, of the macroproblem? This chapter will summarize some of these prescriptions as a preliminary to examination of the role that education may play in carrying out the prescriptions.

Willis Harman has noted that societies often attack their problems directly and then experience unexpected and unintended outcomes. Hardin has described these outcomes as "side effects (1)." They occur, according to Harman, because of inadequacies in the belief and value system that guides decisionmaking.

> It seems that these manifest problems are in a sense symptoms of underlying conditions that are more pervasive and less easy to objectify. At another level these problems reside in the institutions of the society, in built-in power distributions, in the traditional roles to which persons are trained, in the time-hallowed structures and processes. At a still deeper level they involve the most basic assumptions, attitudes, and felt values held by the individual and promoted by the culture. The most carefully designed social measures will not achieve their desired goals unless they involve not only rationally-designed programs and structures, but also changes in deeply-rooted beliefs, values, attitudes, and behavior patterns, both of the individuals who constitute "the problem populations" and of the self-righteous others who assume they are not implicated (2).

Human groups have, in effect, a collective self-image, which has developed over centuries. This image is part of the perceptual apparatus of individual and groups and can serve as a screen, allowing only partial perception of a situation. Difficulties sometimes occur when only part of the consequences of an action are considered, other potential consequences having been screened out. Harman suggests that beliefs, values, and attitudes that comprise the perceptual screen must be examined and perhaps changed in order that "correct" behavior in terms of problem solving can occur. This self-examination may be a process akin to psychotherapy.

> In the end the neurotic discovers that he was divided against himself, and is in a sense lying to himself to conceal that condition. So it may be with our social problems that the significant constructive change is first of all an inner one rather than outer, and in the

> direction of recognizing the hidden lies and resolving the hidden divisions. To put it in somewhat different terms, just as it is possible for a person to have a pathological set of beliefs about himself, so it may be possible for our society to possess a disfunctional belief and value system (3).

Other students of the macroproblem have come to similar conclusions, and have attempted to engage in the self-examination recommended by Harman. They have identified troubles in the belief and value systems of industrial society which result in environmental disruption. One of them is E. F. Schumacher, an economist who argues that the macroproblem has several key dimensions. It is a problem of scale, for giantism and abstraction prevail while people are reduced to numbers and statistics; a problem of limits, for modern lifestyles are consuming the "irreplaceable capital" on which they are based; a problem of value in that fulfillment is seen in the pursuit of wealth, in materialism. His perception of these difficulties leads to the conclusion that what is needed is a new lifestyle ". . .with new methods of production and new patterns of consumption: a lifestyle designed for permanence (4)." This lifestyle must be based on wisdom, which is knowledge about how to use knowledge. Currently knowledge is applied through technology for unlimited economic growth. This is not, in Schumacher's view, very wise, for ". . .the idea of unlimited economic growth, more and more until everyone is saturated with wealth, needs to be seriously questioned on at least two counts: the availability of basic resources and, alternatively or additionally, the capacity of the environment to cope with the degree of interference implied (5)." Further, economic growth involves the expansion, and indeed the cultivation of needs, which in a finite world leads to strife and to a loss of freedom. Wisdom involves controlling growth and

> . . .a new orientation of science and technology towards the organic, the gentle, the non-violent, the elegant and beautiful. . .. We must look for a revolution in technology to give us inventions and machines which reverse the destructive trends now threatening us all (6).

The way to this wisdom will be difficult to follow, for it bucks the tide that has been flowing since the industrial revolution, but to Schumacher there is little choice. Without attainment of wisdom, the macroproblem ". . .will become worse and end in disaster, until or unless we develop a new lifestyle which is compatible with the real needs of human nature, with the health of living nature around us, and with the resource endowment of the world (7)." Development of a new lifestyle along the lines Schumacher proposes will certainly require the difficult reorientation of belief, attitudes, and values that Harman prescribes.

Herman Daly, another economist, has suggested changes akin to those of Schumacher. He argues that developed, industrial societies should work to achieve a steady-state economy, where ". . .the total population and the total stock of physical wealth are maintained constant at some desired level by a 'minimal' rate of maintenance throughput (i.e., by birth and death rates that are equal at the lowest feasible level, and by physical production and consumption rates that are equal at the lowest feasible level) (8)." Such an economy will require a radical reorientation away from economic policy aimed at constantly increasing stocks, at economic growth. Social institutions will have to emerge to control growth. Various proposals ranging from compulsory sterilization to voluntary family planning have been forwarded for controlling population growth. Effective programs will undoubtedly involve some degree of coercion, possibly a situation of "mutual coercion mutually agreed upon (9)." Other proposals are extant for maintaining constant physical wealth. Daly suggests that quotas be set on new depletion of basic resources during a given time. Such are necessary because market mechanisms have not controlled overexploitation of limited and scarce resources, but this idea is anathema to the neoclassical growth economists who dominate economic policymaking today. They argue that a "free" market will adjust to scarcity, and to some extent it will, but overexploitation continues.

The problem of distribution, the have/have-not gap, is critical, as has been noted, and Daly has a proposal for working on it as well. In his steady-state paradigm there must be an upper limit to the standard of living, while there is no such limit in the "growthmania" paradigm of current economic thought.

> The basic institution for controlling distribution is very simple: set maximum and minimum limits on wealth and income, the maximum limit on wealth being most important. . .when some own a great deal of it and others have very little, private property becomes an instrument of exploitation rather than a guarantee against it. . .. The proposed institution of maximum and minimum wealth and income limits would remedy this severe defect and make private property legitimate again (10).

Such an idea seems outrageous in a society which claims to place no limits on aspiration and which measures success in terms of wealth and income, but Daly is convincing in his contention that some distributist mechanism is essential to success of the steady-state economy. Like Schumacher, he recognizes the difficulty of his proposals which require good will, commitment, and moral growth for their achievement. Daly notes, "However logical and necessary the above outline of the steady state, it is, on the assumption of static morality, nothing but a dream. The physically-steady economy absolutely requires moral growth beyond the present level (11)." Schumacher, on the subject of wisdom, notes that it can be found only in the self. "To be able to find it, one has first to liberate oneself from such masters as greed and envy. The stillness following liberation--even if only momentary--produces the insights of wisdom which are obtainable in no other way (12)." Both men recognize that their ideas challenge the basic assumptions, structures, and processes commonly held, but convinced that the status quo may lead to disaster, they counsel the same deep self-examination and critical reassessment of thinking and behaving that Harman does. Their prescriptions for coping with the macroproblem do not involve tinkering; they involve restructuring.

Amory B. Lovins is a physicist who has stimulated much debate among energy specialists with his ideas about energy strategy. His prescriptions in this area also challenge conventional thinking. The energy issue which has occupied Lovins has been at the forefront of much discussion in recent years because demand worldwide, but particularly in the United States, has increased rapidly. This has led to depletion of non-renewable energy supplies, such as petroleum, and to a rush to increase energy production by whatever means possible. The prospects of increasing scarcity, higher prices, and pollution from stepped-up production efforts make energy a problem area. Also, energy is the blood of the modern industrial organism, and the conventional view is that growth in energy production is essential to a healthy economy which is, of course, a growing economy.

Lovins contributed significantly to the energy debate in 1976 with a seminal paper in which he asks questions about America's de facto energy policy. Where is it leading? What alternatives to the policy might be suggested: Lovins identifies two paths, and contrasts them.

> The first path resembles present federal policy and is essentially an extrapolation of the recent past. It relies on rapid expansion of centralized high technologies to increase supplies of energy, especially in the form of electricity. The second path combines a prompt and serious commitment to efficient use of energy, rapid development of renewable energy sources matched in scale and in energy quality to end-use needs, and special transitional fossil-fuel technologies. This path, a whole greater than the sum of its parts, diverges radically from incremental past practices to pursue long-term goals (13).

He proceeds to reveal many problems associated with the centralized high technology path, among them high capital cost, inefficiency and waste, loss of personal choice and freedom, system inflexibility, pollution, and non-renewable resource depletion. He finds much to recommend the second path, which he calls the "soft energy path." Advantages include flexibility, reliance on energy income rather than on depletable energy capital with consequent sustenance over time, diversity and appropriateness for particular circumstances, and a matching in scale of production and quality of energy to end use needs.

Lovins argues that the soft and decentralized energy strategy offers the best path technologically and socially toward solution of the energy supply and demand problems. He recognizes the difficulty of adopting his choice, that it will involve reorientation of thinking away from the idea that bigger is better and more of everything is necessary. He suggests that people must rid themselves of the belief that abstract limitless wants are worth striving for, and recognize that concrete needs which are achievable are more realistic and satisfying on the finite earth. He notes that, "Underlying energy choices are real but tacit choices of personal values (14)." Such values as thrift, simplicity, diversity, neighborliness, humility and craftsmanship underlie the choice of the soft path and will be sustained by it.

As with the prescriptions of Schumacher and Daly, Lovins' ideas are anathema to people making policy decisions today. There is much support in governmental and business circles for hard energy paths and not much for the soft alternative. The common practice in assessing energy demand for the future is to project the rate of increasing demand in the historical past, especially the recent past, into the future. A large and important industry has developed to meet the ever-growing demand, and this industry certainly wishes to survive and grow. Its projections of energy demand take on the character of self-fulfilling prophecies. Its growth is based on proliferation of goods and services which require energy. It takes energy, for instance, to build automobiles and pleasure boats, to power them along with hair dryers and a great variety of home appliances, and to produce metals and synthetic substances like plastics. Industry constantly creates new products, then creates markets for the products by advertising and creating wants. And so it goes, with more wants satisfied by more products requiring more energy to construct, maintain and operate. Along comes Amory Lovins who argues for such values as thrift and simplicity, and there is much resistance from those producers and consumers with vested interest in waste and a complex lifestyle. Lovins does not argue for no-growth, but does question the assumption that if increased energy supply and demand was a blessing in the past, it will continue to be so in the future.

> Civilization in this country, according to some, would be inconceivable if we used only, say, half as much

> electricity as now. But that is what we did use in 1963, when we were at least half as civilized as now. What would life be like at the per capita levels of primary energy that we had in 1910 (about the present British level) but with doubled efficiency of energy use and with important but not very energy-intensive amenities we lacked in 1910, such as telecommunications and modern medicine? Could it not be at least as agreeable as life today? Since the energy needed today to produce a unit of GNP varies more than 100-fold depending on what good or service is being produced, and since GNP in turn hardly measures social welfare, why must energy and welfare march forever in lockstep? Such questions today ben be neither answered nor ignored (15).

Lovins raises telling and difficult questions and invites reassessment of current policy directions. He challenges not only the corporate and governmental executive, but also the American who directly and indirectly consumes energy wastefully. Energy lies at the heart of modern industrial society, and values, concepts, and structures have evolved in relation to it. The critical self-examination prescribed by Harman must focus on the central problem of energy, and Lovins has provided a controversial but important approach to this examination.

Yet another scholar whose work follows Harman's prescription is Erich Fromm. Some of his recent work, particularly *The Revolution of Hope* (1968) and *To Have or to Be* (1976), has focused on problems of contemporary society and their solution. In the latter book he argues that the "Great Promise of Industrial Progress" which was a promise of domination of nature, material abundance, general happiness, and great personal freedom, has failed. Its failure has become evident to people who have concluded that material wealth and well-being are not the same, that freedom is considerably abridged by institutions of modern industrial society, that economic progress has not been universal, and that technical progress ". . .itself has created ecological dangers and the dangers of nuclear war, either or both of which may put an end to all civilization and possibly to all life (16)." He observes that two premises underlie the Great Promise, one of them being that the aim of life is maximal pleasure, and the other that selfishness and greed are necessary to the function of the system and lead to harmony and peace. These premises have led to a philosophy and economy which must, in Fromm's view, be changed if catastrophe is to be avoided.

> The need for profound human change emerges not only as an ethical or religious demand, not only as a psychological demand arising from the pathogenic nature of our present social character, but also as a condition for the sheer survival of the human race. Right living is no longer only the fulfillment of an ethical or religious demand. For the first time in history the *physical survival of the human race depends on a radical change of the human heart*. However, a change of the human heart is possible only to the extent that drastic economic and social changes occur that give the human heart the chance for change and the courage and vision to achieve it (17).

This is a large order, but Fromm goes on to suggest the nature of the change that seems necessary and proposes measures that will help it occur.

He accepts the seriousness of the macroproblem, dimension of which he describes in both books, especially in The Revolution of Hope. A search for the cause of the problem leads him to the distinction that has been made for ages, most notably by Buddha, Jesus, Master Ekhart, and Karl Marx, between having and being. He finds that ". . .empirical anthropological and psychoanalytic data tend to demonstrate that *having and being are two fundamental modes of experience, the respective strengths of which determine the differences between the characters of individuals and various types of social character* (18)." The mode of experience which dominates industrial society is the having mode. It appears in what Fromm calls the "marketing character" which he theorizes has developed since the industrial revolution, which spawned an "industrial religion." This "religion" involved submission to male authorities, strong feelings of guilt for disobedience, and ". . .dissolution of the bands of human solidarity by the supremacy of self-interest and mutual antagonism (19)." Sacred in the religion were work, property, profit, and power. Gradually these values gained ascendancy up to the present in which greed and materialism have reached a scale that threatens to deplete the resources upon which human life and culture depend.

The mode of experience which Fromm calls "being" involves a breaking out of the egotism involved in defining one's value in terms of property, whether that property be land, knowledge, strength, power, or something else. It involves life, activity, birth, flowing out, productive expression of one's powers. It is not selfish but selfless, invokes a desire to share, to give, to sacrifice.

Fromm thinks that tendencies toward "having" and "being" exist in human beings and that social structure in a society decides which of the two becomes dominant. Both tendencies are natural and adaptive. The having mode ". . .owes its strength in the last analysis to the biological factor of the desire for survival. . .the other, to be. . . owes its strength to the specific conditions of human existence and the inherent need to overcome one's isolation by oneness with others (20)." These are human potentials, and societies cultivate one or the other of these potentials.

> A society whose principles are acquisition, profit, and property produces a social character oriented around having, and once the dominant pattern is established,

> nobody wants to be an outsider, or indeed an outcast; in order to avoid this risk everybody adapts to the majority, who have in common only their mutual antagonism.
>
> As a consequence of the dominant attitude of selfishness, the leaders of our society believe that people can be motivated only by the expectation of material advantages, i.e., by rewards, and that they will not react to appeals for solidarity and sacrifice. . ..
>
> Only a radically different socioeconomic structure and a radically different picture of human nature could show that bribery is not the only way (or the best way) to influence people (21).

All of this selfishness and materialism leads to environmental problems, which Fromm sees as coming from a flawed character structure. His prescription for coping with the macroproblem calls, therefore, for a change in this character structure, which he thinks is possible. It can occur if people are aware of ill-being and of its origin, perceive a way out of the difficulty, and accept the necessity for changing life norms and practices. This is a large order, but Fromm believes such large-scale characterological change is possible if certain measures are implemented. These measures include

-- a "Humanistic Science of Man," the goal of which is ". . .not control over nature but control over technique and over irrational social forces and institutions. . . (22)."

-- the orienting of production for "sane consumption," which will change patterns of consumption.

-- the realization of "industrial and political participatory democracy" through decentralization of industry and politics, replacement of bureaucratic with humanistic management, and creation of a more effective information dissemination system than the current one.

Such measures will enable an evolution to a "New Society" to occur, the function of which will be the emergence of a "New Man." The character structure of this new person will evolve toward the being mode wherein one knows and accepts what and who one is rather than struggling to define one's self in terms of the money and power and other possessions that one has. People will accept responsibility for their lives, will give and share with their fellows, will love and respect all life and strive to live without illusions. The goal of living will be growth of self and one's fellows, and action will be tempered by a sense of oneness with all life and recognition of the need to understand and cooperate with nature.

While all of this sounds utopian and idealistic, Fromm is not unaware of the obstacles to achieving this new society and new man. Those who undertake efforts in this direction must be "hardheaded realists, shed all illusions, and fully appreciate the difficulties (23)." Fromm considers himself such a realist, and concludes

> . . .the chances for necessary human and social changes remain slim. Our only hope lies in the energizing attraction of a new vision. . .. The "utopian" goal is more realistic than the "realism of today's leaders. The realization of the new society and new man is possible only if the old motivations of profit, power, and intellect are replaced by new ones: being, sharing, understanding; if the marketing character is replaced by the productive, loving character; if cybernetic religion is replaced by a new radical-humanistic spirit (24)."

The purpose in describing Eric Fromm's ideas here at such length is that his description of the macroproblem and his vision of a solution are deep and broad. The measures he prescribes encompass those of Lovins, Daly, Schumacher, and Harman. His probe for a cause of the macroproblem reaches back through contemporary philosophy to its antecedents. He reveals how deep-seated and well established are the problematical elements of modern belief and value, and he boldly states that "character" must be changed. His analysis reveals the dimensions, the scale, of the challenge posed by the macroproblem. It becomes clear that tinkering with the mechanisms of industrial culture will not be sufficient for solving the problem. Changing the foundation and structure will be necessary.

These scholars have examined the contemporary world and found in it a problem of such dimensions that radical treatment is prescribed. Others have done so as well, among them Ferkiss (25), Stavrianos (26), Laszlo (27), Pirages and Ehrlich (28), Henderson (29), Roszak (30), and Illich (31). They can see no way to lessen environmental stresses in the long term except through social change, the altering of values, perceptions and premises. Some write of changing the "paradigm" that has guided action which has resulted in the macroproblem, in the character structure criticized by Fromm and the ethic attacked by Schumacher, Daly and Lovins. A paradigm is a way of perceiving, thinking, valuing and doing associated with a particular perception of reality (32). Thus changing a paradigm means changing an understanding, altering a perceptual screen, that a culture imparts to its members through their experience. It is not taught but is acquired. The individual people who embrace the economy that Schumacher and Daly criticize, who crave more things and display the problematical character structure Fromm describes, are simply acting as they have learned to act throughout their experience. They perceive themselves and their relations to other people and to nature according to the lifeways of their group. What emerges from a review of the students of environmental problems and their solution is the conclusion that a concerted, planned effort to alter the paradigm of industrial culture is essential for adaptation to environmental constraints.

This view is derived from new information. It was not possible to suggest such a transformation and support it with ecological arguments until recently when science described the physical dimensions of the constraints. Harman, Schumacher, Daly, Lovins, and Fromm, among others, have attempted to go beyond description of the physical constraints to their social implications. They agree that conceptions of human needs must be changed, that the scale of human institutions must be lessened to be more appropriate to human need satisfaction, and that a more humane and ecological ethic must govern action in the modern world in general and the industrial world in particular. These conclusions come to them through the process of analysis that Harman prescribes, a process which more people must experience, and to which education can contribute.

Footnotes

Chapter II

1. Garrett Hardin, *Exploring New Ethics for Survival* (New York: The Viking Press, 1972), p. 68.

2. Willis W. Harman, "The New Copernican Revolution," in Robert Theobald, ed., *Futures Conditional* (Indianapolis, Ind.: The Bobbs-Merrill Company, Inc., 1972), p. 187.

3. *Ibid*., pp. 187-188.

4. E. F. Schumacher, *Small is Beautiful* (New York: Harper and Row, 1973), p. 19.

5. *Ibid*., p. 28.

6. *Ibid*., p. 31.

7. *Ibid*., p. 144.

8. Herman E. Daly, ed., *Toward a Steady-State Economy* (San Francisco: W. H. Freeman and Company, 1973), p. 152.

9. Hardin, *Exploring New Ethics for Survival*, p. 186.

10. Daly, ed., *Toward a Steady-State Economy*, pp. 168-169.

11. *Ibid*., p. 170.

12. Schumacher, *Small is Beautiful*, p. 35.

13. Amory B. Lovins, "Energy Strategy: The Road Not Taken," *Foreign Affairs*, 55, 1 (October, 1976), p. 65.

14. *Ibid*., p. 94.

15. *Ibid*.

16. Erich Fromm, *To Have or To Be* (New York: Harper and Row, 1976), p. 2.

17. *Ibid*., pp. 9-10.

18. *Ibid*., p. 16.

19. *Ibid*., p. 146.

20. *Ibid*., p. 105.

21. _Ibid_., pp. 106-107.

22. _Ibid_., p. 176.

23. _Ibid_., p. 173.

24. _Ibid_., p. 201.

25. Victor Ferkiss, _The Future of Technological Civilization_ (New York: George Braziller, 1974).

26. L. S. Stavrianos, _The Promise of the Coming Dark Age_ (San Francisco: W. H. Freeman and Company, 1976).

27. Ervin Laszlo, _The Inner Limits of Mankind_ (New York: Pergamon Press, 1978).

28. Dennis Pirages and Paul Ehrlich, _Ark II: Social Responses to Environmental Imperatives_ (San Francisco: W. H. Freeman and Company, 1974).

29. Hazel Henderson, _Creating Alternative Futures_ (New York: Berkeley Publishing Corporation, 1978).

30. Theodore Roszak, _Where the Wasteland Ends_ (Garden City, New York: Doubleday & Company, Inc., 1972).

31. Ivan Illich, _Tools for Conviviality_ (New York: Harper and Row, 1973).

32. Willis W. Harman, _An Incomplete Guide to the Future_ (San Francisco: San Francisco Book Company, 1976), p. 24.

CHAPTER III

HOW EDUCATION MIGHT RESPOND TO THE MACROPROBLEM

What role can and should education play in coping with the macroproblem along the lines suggested in the previous chapter? It can assist in the critical examination and change of the troublesome values, perceptions, and premises. It can contribute to creation of the conditions necessary for the deep-seated changes that have been prescribed.

Several caveats relative to education must be made at this stage of the discussion. The term "education" is used broadly here. Its use is not confined to formal educational environments, like schools, but refers to the series of directed learning experiences that contribute significantly to human growth in the course of a person's life. Secondly, while the macroproblem is the worldwide problem and must be addressed by education all over the world, discussion here will be focused on education in the United States. The problems and possibilities of mounting an educational response to environmental problems in the United States with its democratic political system and egalitarian educational tradition is unique in many ways. Discussion will, therefore, be confined to the United States, though clearly insights gained in this study may be fruitfully applied elsewhere. Thirdly, it seems clear that education not only socializes people to the lifeways of the group, maintaining order by teaching acceptable value orientations and behavior patterns, but also is a part of the process of innovation and revision that cultures constantly experience. This occurs especially in a democracy where people have the freedom to question traditional values and mores if they have the desire and the will to do so. An important and related point is that the United States is a pluralistic society, and the varied viewpoints people can bring to problem-solving are a resource to be preserved. Yet another related point is that environmental management in the end comes down to individual persons making choices. This process of choosing involves both feeling and thinking. Thus education related to decision-making involves the whole person, not just the rational being or the emotional being, as some would have it.

There are also assumptions about the nature of humankind that must be admitted before considering the macroproblem as an educational problem. Humans are viewed as beings with great capacity for growth and achievement, as possessing logical thinking capacities, spirit, and imagination. They are motivated by needs which range from the physical needs for hunger and shelter to needs for beauty and selflessness. Abraham Maslow summarizes this view of human nature.

> We can certainly now assert that at least a reasonable, theoretical, and empirical case has been made for the presence within the human being of a tendency toward, or need for growing in a direction that can be summarized in general as self-actualization, or psychological health, and specifically as growth toward each and all of the sub-aspects of self-actualization, i.e., he has within him a pressure toward unity of personality, toward spontaneous expressiveness, toward full individuality and identity, toward seeing the truth rather than being blind, toward being creative, toward being good and a lot else (1).

Thus it is argued that humans can and do change collectively and individually, can grow in new directions and adopt different values that are less problematic and more life-sustaining than those which have gotten them into trouble. Humans can become aware of the need to adapt their behavior to environmental constraints, and most can come to this awareness as individuals. This view sees no need for leviathan, for benevolent dictatorship or planned behavior modification on a large social scale. If given sufficient information, freedom of choice, necessary thinking skills, a supportive environment, and self-confidence, people are capable of making the "right" choice leading to adaptation, to coping with environmental constraint. This is an "article of faith" in human nature which makes educational approaches to environmental problem-solving seem worthwhile.

Having made these preliminary observations, the task is to explore how the macroproblem may be attacked with the tools and processes of education. Erich Fromm revealed part of the educational task when he argued that only a characterological change could save us from catastrophe. He argued that human character could change if several conditions exist:

1. We are suffering and are aware that we are.
2. We recognize the origin of our ill-being.
3. We recognize that there is a way of overcoming our ill-being.
4. We accept that in order to overcome our ill-being we must follow certain norms for living and change our present practice of life (2).

This "ill-being" of which Fromm writes is both a contributor to, and result of, the macroproblem, and education will play a large role in creating these conditions that Fromm describes. Educators who are aware of the dimensions and imperatives of the macroproblem can purposefully set out to raise awareness of "suffering." This may seem an odd task for educators, yet ignorance may, in fact, be blissful for a while in the affluent industrial nations while problems mount elsewhere which may eventually upset the lives of people in those industrial nations. People may, for instance, believe that there is no population and hunger problem if their environment is not crowded and they have plenty to eat. Only if they are informed of the dimensions of the problem through the media, school programs, and elsewhere, and learn that they contribute to the problem through their consumption habits, will they become aware of a "suffering" of which they are a part. Only when they examine various trends in population growth and food production and consumption and project them into their personal futures will they become aware of potential problems for themselves. The task for educators is certainly not to contribute to "suffering" but to raise awareness of it.

Perhaps educators can help people to understand that the condition of general malaise which they vaguely feel, their low-grade tension and uneasiness, described as alienation and "anomie" by some observers, is related to a feeling of helplessness directly traceable to the scale of the world in which they live. Their world has slipped beyond their control. Prices go up, the young are confused about values, and people have no idea what causes this situation or how to correct it. Perhaps they can be helped to see that the constant anxiety they feel is at least partially a consequence of having sacrificed self-respect in pursuit of power or material goals. Educators may help people understand that their suffering is tied to values and a problematical way of life. Michael Maccoby, for example, helps corporate executives become aware of their troubled condition, which lies in the demands which their work makes upon them. His analysis of their problems and their response to it indicates that they may undergo the "change of heart" prescribed by Fromm (3).

This is not to suggest that anxiety and other elements of ill-being derive solely or in many cases even primarily from problems such as those Fromm describes which are related to pursuit of "having" power, material well-being, and other attainments. Other factors such as dehumanizing work, scale of institutions and consequent emotional distance from people, and diminished sense of personal responsibility, to name a few, contribute to this condition. The complexity of the situation has been revealed in the works of Frankl (4), Slater (5), Moustakas (6), May (7), and Wheelis (8), among many others. The point is that a condition exists in many people, referred to by some students of the situation as the "existential neurosis (9)," which Fromm calls "ill-being." This condition, whatever its specific sources, is attributable to cultural conditions, which can be changed if the will to do so is present. This will is derived in part from knowledge of the problem in the self. The change can, as Fromm notes, contribute to solution of the difficulties that have been described in this study as the world macroproblem.

Psychologists like Fromm and Maccoby are, in their respective ways, educators working to create the second of Fromm's conditions for character change, that of recognition of the origin of ill-being. Returning for a moment to Willis Harman's point made in the last chapter, this is the part of the process in which self-examination is so important. Such examination obviously plays an important role in achieving the first of Fromm's conditions, but is essential to achievement of the second. One asks, "Why do I feel this way?" and may come up with various answers. The tension headache is recognized, for example, as resulting from a hectic day at the office, and one prescribes an aspirin and goes back to work the next day. But perhaps to truly understand the origin of the pain one must ask why one is at the office and why things go the way that they do there. In sum, what caused the pain? Several years ago a commissioner of the Federal Communications Commission, in writing about ill-being and its causes and television's role in it, made the point very well.

> The headache remedy commercials are among the most revealing. A headache is often our body's way of telling us something's wrong. What is wrong may have to do with the bad vibes one picks up working in big corporations' office buildings or shopping in their stores. The best answer may be to stay out of such places. Obviously, such a solution would be as bad for the corporate state generally as for the headache remedy business in particular. So the message is made clear: Corporate jobs and shopping trips are as American as chemical additives in apple pie. You must keep driving yourself through both. And when those mysterious headache devils appear for no reason at all, you swallow the magic chemicals (10).

This polemical statement illustrates why self-examination is difficult in contemporary society. People have to some degree chosen the way of life that they experience and are threatened by the possibility of change, even though change might be good for them. Many institutions of modern society, with vested interest in retaining the prevailing social values and behavior, try to convince people that their ill-being can be easily and painlessly alleviated and thus avoid change which might be damaging to business. They foster an illusion which is powerful. They pose a great challenge to educators and others who are convinced that the condition of ill-being can only be alleviated by deep-seated change in belief, value and behavior.

Willis Harman has specifically identified some of the problems with modern thought which contribute to social and environmental ills and which must be changed. He calls these "pathogenic premises" and includes among them the belief that any technology which can be developed should be, and should be applied; the reductionist view of people which suggests that humans are "machines" which can be understood and manipulated by means of mechanistic processes and which leads to dehumanizing ways of thinking about and treating humans; the premise of separateness that allows people removed from others in time and space to ignore them and take no responsibility for their welfare or lack thereof; the separateness from nature idea which leads to exploitation and control rather than cooperation with nature; and the "economic man image" that leads to a system of growth and expenditure of irreplaceable resources (11). These and other premises must be changed, argues Harman, and education must participate in the changing of them. He suggests how this might be done.

> . . .the world macroproblem will not be solved by top-down control of population and technology alone; specific changes in basic premises, perceptions, and values will be required. In particular, emotional and intellectual awarenesses are needed of the ineluctable fact that we are one race, on one planet, with total responsibility for the future of both. Some sets of operative values are compatible with the fulfillment of man's potential and the achieving of a high quality of life; others are not.
>
> Undertaking this task implies the engagement of emotional and conative, as well as cognitive, faculties. It is not enough that we be intellectually aware that nationalism is now a suicidal course, or that values must be altered if the course of the increasing "have-have-not" gap is to be reversed. If deeply held premises and values are to be reexamined for possible change, educational experiences must be contemplated that are akin to psychotherapy in that they aim at

> bringing the individual into closer touch with himself. In such inner exploration, he may discover a felt realization of the inevitability of one inseparable world, and a felt shift in his deepest personal values and most basic premises (12).

Harman recognizes the difficulty of the task, but argues that only such analysis will lead to meaningful understanding of the origin of Fromm's "ill-being."

This examination can be achieved in various ways. One way is that pursued by people like Fromm, Schumacher, Harman, Roszak (13), Illich (14), and other social critics and analysts. They attempt to show, in their writings, the causes of the suffering. Theirs is a highly-intellectual and abstract approach and will reach only a small part of the population which has the time and skill to study their writings. Their contentions must be simplified and presented in various forums, such as in media and educational programs. Another way that self-examination is being pursued is through the process of values clarification that is being utilized in schools, churches, and other places where people gather to think and discuss. Much more will be said about this approach in later discussion. The point here is that education can and must assist people to recognize the origin of their ill-being.

Fromm's third condition is that people recognize that ill-being can be overcome. This involves instilling in them knowledge of skills and strategies for overcoming their condition of ill-being and confidence that they can apply them to achieve their goals. To become aware of "suffering" and of its origin, yet have no idea about how to improve this condition, is to despair. People like Schumacher, Daly, Lovins and other students of the macroproblem have ideas about the specific societal changes that need to be made, such as moving toward "appropriate" technology, institutions of more human scale, and less wasteful ways of resource consumption. Fromm describes in To Have or To Be the "new society" where many problems that concern him will be solved. These ideas can be described to people, held up as goals toward which to work.

It would be misleading to suggest that experts understand all of the strategies necessary to achieve these goals. Far more have described the macroproblem than have envisioned solutions. Yet new ideas are constantly emerging and will continue to come out of the very process of becoming aware and studying causes that occur in meeting the first two conditions. Many strategies for transformation are currently being tried. L. S. Stavrianos has recently attempted to describe the various efforts being made around the world to adopt humane technology that is not ecologically disruptive, to decentralize decision-making in the workplace and the government, and to restore community and the value of cooperation in human activity (15). Alternatives to Growth conferences have produced ideas helpful to designing strategies for coping with environmental constraints (16). And many individuals have suggested strategies for adapting and changing to a healthier life-style, among them Roszak, Edberg (17), Theobald (18), Leonard (19), and Peccei (20). Their ideas provide hope and suggest paths out of the condition of ill-being.

Education can also contribute to development of skills necessary to overcoming this condition. These skills will be varied, ranging from skills necessary for self-examination to social skills for working with diverse people, to cognitive skills necessary for understanding problems, and problem-solving skills. Donald Michael has summarized the set of "abilities" which he thinks necessary for long-range planning and for working out of broad-scale social difficulties.

> We must put vastly more emphasis on educating for certain intellectual abilities. We must educate people to have long-range perspectives, to think in terms of many variables related to each other as probabilities rather than certainties and related to both cause and effect of each other. We must educate for logical skill in recognizing and working through the ethically and morally tortuous dilemmas implicit in the assignment of social priorities and in the risks involved in seeking to attain them. This logical skill must be complemented by deep familiarity with the history of ideas and of comparative ethics, since the recognition and resolution of ethical issues is as much a matter of extrarational factors--historical accident and traditional values--as of purely rational assessments. . .. With regard to the education of the feelings, the self, the emotions: we must educate for empathy, compassion, trust, nonexploitiveness, non-manipulativeness, for self-growth and self-esteem, for tolerance of ambiguity, for acknowledgement of error, for patience, for suffering (21).

This is a large order for education and will require effort directed at all levels of learners in all available educational environments. It may be argued in the face of such a mandate that education in America is not very successful at imparting basic cognitive skills so it is most unlikely that it can facilitate learnings of such higher order in many people. Michael believes that only a "special cadre" of people can acquire the specified abilities, and this may be so, but even if this is the case, such people can move toward necessary reform of thought and lifestyle.

He also notes, as does Harman, that changes in educational institutions must occur for such learnings to be achieved. Which comes first, the learning of the skills or the educational environment facilitative to the learning of such skills? Undoubtedly they will progress together, with enlightened educators making institutional changes and providing learning experiences that result in learners with the skills Michael describes, who in turn change learning processes and environments by their demands, and so forth as the change progresses slowly and in an evolutionary way.

The fourth necessary condition that Fromm identifies is acceptance of the fact that escape from ill-being will require the adoption of new norms for living and change of lifestyle. How can education contribute to this condition? It does not seem that this condition can be separated very well from the others. Awareness of suffering, understanding of the sources thereof, and recognition that feasible means for changing are at hand, should lead a person to the conclusion that all that remains is for one to take action. This is a problem of motivation. The task for educators at this point is to encourage action, to point out avenues of action and to provide opportunities for action where possible. Obviously this is not a task only for education, but certainly education will have a role to play. It will be argued later than experiential approaches to learning will release intrinsic motivation in learners that will result in action. This argument is founded on the premise mentioned earlier that people tend toward growth, have a desire to move toward resolution of problems. Maslow has noted that

> All the evidence that we have (mostly clinical evidence, but already some other kinds of research evidence) indicates that it is reasonable to assume in practically every human being, certainly in almost every newborn baby, that there is an active will toward health, an impulse toward growth, or toward the actualization of human potentialities (22).

This potential can be released, and as people strive to grow and actualize potentialities, within the context of the first three conditions, they will be actively moving toward definition of the new lifestyle that Fromm and others see as a necessary response to the world macroproblem. Education can facilitate the release of this potential, and the specifics of how it can do so will be discussed later.

Critics of this "human potential" approach may argue that it is of limited usefulness because it focuses on the self rather than the group, and what is needed above all for coping with the macroproblem is a new sense of community and cooperation among the world's peoples. Such critics characterize the human potential movement as too selfish and inner-directed. Certainly a risk of selfishness exists, but Maslow argues that achievement of personal potential is not necessarily in conflict with that of the groups to which the person belongs. The idea of the synergetic society is central to Maslow's thinking, a society in which a person pursuing his own interest benefits the society as well. Such a society might evolve as people come to see their welfare inextricably tied to that of the group, and certainly one of the insights that is gained through study of the world macroproblem is that the welfare and destiny of each person are inextricably connected to those of everyone else. Perhaps this will lead to the realization that a person's growth depends on growth in the society, and greater social synergy will emerge. The idea of a synergetic or Eupsychian society, as Maslow referred to it, is very similar to Fromm's idea for a New Society.

The task, then, seems to be one of applying motivating strategies in an educational process. There a number of such strategies that can be described, and those involved in humanistic educational processes will be suggested here as holding the greatest potential for moving people to action. These strategies involve thinking and feeling and engage the entire person rather than either thinking or feeling in separation. Again Harman has summarized the task as well as anyone.

> . . .what characterizes education toward re-examination of premises and values is not so much content--which might cover a wide range of relevant material--but, rather "upending" cognitive, perceptive, and evaluative experiences and opportunities conducive to "unlearning" to be free to adopt a new response pattern or perception. In spite of the fact that a great diversity of content can be adapted to this purpose, two types appear especially useful. One is the history or present experience of the individual himself. The second is the intellectual history of mankind, which is replete with examples of "obvious" and "self-evident" beliefs and perceptions that were either demonstrably (in retrospect) pathogenic or for other reasons were rejected by future generations.
>
> Processes are required that foster openness, authenticity, free exploration, and willingness to risk and that are supportive of the individual while he re-examines deeply held values, perceptions, and premises (23).

Harman's description conjures up images of groups of people of all ages in universities, churches, public schools and elsewhere, meeting to examine questions which force them to analyze personal and cultural history. Their interactions will take the form of lectures, discussions, simulations, role plays, values clarification exercises, engagement of moral dilemmas, and many other processes currently available and others yet to be developed. Leaders concerned about the macroproblem will facilitate these inquiries, attempting all the while to maintain an open and supportive environment in which people will be free to share their views without fear of embarassment and reprisal. People will come to these interactions because they feel a need to do so, because they recognize ill-being and have come to see that only their action can change anything. Blaming the government, the "corporate state," the boss, or anyone else does nothing to improve matters. Only understanding which leads to action based on understanding will help, and people may become aware of this and seek help in finding their way. They may come to educators, among others, for help, for these are the people whose business it is to help others learn and grow and reach the understanding they seek. Those already in an education system can examine values, perceptions and premises in the course of their general curriculum.

This perhaps sounds optimistic, even utopian, for if people already feel ill-being today, why are they not seeking understanding as envisioned here? Perhaps they are, through personal psychotherapy and such movements as Transcendental Meditation, Arica and EST. They may be helped in their coping by such programs, but do not gain insight into the macroproblem underlying their malaise. A new role for American education may be emerging from all this, one which many, probably the majority of, American educators are not ready to embrace. It involves social reform, and most educators do not perceive reform as part of their business. When and if awareness of the macroproblem emerges in the educational community, then it may respond in such a way as to offer help to people who need it. Michael Maccoby's experience studying corporate leaders lends some credence to this possibility. When executives learned that Maccoby had achieved significant insight into their situation, many came to him asking for his help in understanding themselves and their circumstances. Perhaps an analogous situation will emerge with education and the community at large (24).

People will come together to discuss and learn and grow because they believe that the future can be better than the past. This future is their personal future as well as that of their family, community, society, and of mankind generally. Their greatest concern will of course be for themselves and their immediate families. They will ask how they can live more effectively within their life situations, how their world functions, and what changes need to be made to make it function better. The role of educators will be to help in the framing of these questions and in the process of exploring for answers. Robert Theobald has noted that

> . . .every experience of true individual learning must. . . recognize the constraints of the past, must hold a hope/belief for the future, and must act in the present for it is only in this way that we can mesh the necessities of the past with the potential of the future. The future is not determined: it is created out of our actions and in light of our hopes and fears (25).

Education will not, of course, do the whole job of coping with the macroproblem by itself. It will complement efforts in many other sectors. It is a relatively slow and long-term approach to environmental action. It will be promoted by and will in turn promote efforts in the courts and legislative arenas, by "top-down" administrative and technical efforts to control pollution, land use, and other problems. Educators, administrators, lawmakers and others will work on the problems separately, yet all of their efforts will coalesce into an effective whole that will yield results.

Finally, the fact that education is a constantly ongoing process in every society impels anyone concerned about the macroproblem to examine it for ways it can be utilized in problem solving. Humankind's unique position on earth as its most broadly adapted species is a consequence of its educational experience. People have learned how to live, how to adapt to environmental demands, and this knowledge has been passed on and accumulated through the generations. Environmental education is simply a continuation of this process. It assists modern people in adapting to their environment by providing knowledge and tools to interpret that knowledge and to acquire more. Rolf Edberg has observed that up to now humankind has used its knowledge to try to "master" nature. The information currently being received from nature, in the form of pollution and constraint, indicates that such mastery has not been achieved. Thus he concludes that the test may be "to try to master ourselves." He goes on:

> In this corner of the universe man is the only being that knows that evolution is going on. This is knowledge newly won, hardly more than a century old. Through that knowledge, our existence has gained a perspective for the first time.
>
> Man is the only being who can effect his own evolution, and that knowledge is a child of the present generation. He has reached a stage at which he not only can but must take the responsibility for his own continued development and for his planet home. The obligation to do this was the price of his knowledge. There is no way back (26).

The point here is simply that this situation imposes a new responsibility upon humankind, a responsibility that may not be successfully met unless many people understand the knowledge of which Edberg writes. The achievement of this understanding falls squarely on the shoulders of what is broadly defined as education.

Footnotes

Chapter III

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24. Maccoby, The Gamesman, pp. 178-179.

25. Robert Theobald, "Why Discuss? How to Dialogue," in Robert Theobald, ed., Futures Conditional (Indianapolis: The Bobbs-Merrill Company, Inc., 1972), pp. 219-220.

26. Edberg, At the Foot of the Tree, pp. 142-143.

CHAPTER IV

EDUCATION'S RESPONSE: REVIEW AND ASSESSMENT

How has education responded to the challenges of environmental problems? While a comprehensive and detailed answer to this question is not possible here, an overview of work currently being done in what has recently come to be called "environmental education" is essential to the task of suggesting directions which education might take in helping to cope with the world macroproblem. The suggestions will come in the next section of this paper. This background section will conclude with a historical sketch and review of education's efforts in the United States and, in lesser detail, other parts of the world.

When the earliest settlers came to the New World from Europe in the 16th Century, they found there a struggle to meet their basic needs for food, shelter, safety and security. They also found a land of virtually limitless opportunity with millions of acres of forests and prairies and a storehouse of resources. They set out to capitalize on the opportunity, and American history can be studied as the process of exploiting resources in the building of the nation. As powerful ideas concerning destiny and purpose and work supported ambition, people very early began to do damage to the American environment. Udall has written of the "myth of super abundance" which deluded people into thinking that there was an endless supply of all natural resources (1).

Thinking that these resources had been placed here for their benefit, people used the forests, soils, wildlife and other resources with little thought for the future.

There was indeed an abundance of resources in the colonial era, yet even then a few people counseled care in using the land. Among them were George Washington and Thomas Jefferson who were concerned about the careless husbandry that was destroying tobacco land in Virginia. John and William Bartram, John James Audubon, Francis Parkman, Ralph Waldo Emerson, and Henry David Thoreau were prominent among naturalists and thinkers who began to explore nature and reflect on its value before the middle of the nineteenth century. They recorded their observations, and their writings and paintings may be regarded as early educational efforts to increase appreciation for nature.

The concerns of such naturalists and philosophers were of little importance to frontiersmen and entrepreneurs, and their efforts did little to stem the rolling tide of resource exploitation. The second half of the nineteenth century in America was a period of wanton destruction of the natural environment as people scrambled to grow rich or at least comfortable. George Perkins Marsh, John Wesley Powell, John Burroughs, John Muir, Gifford Pinchot and others wrote extensively to educate the public to problems that were emerging during this time. Sometimes they were successful in building appreciation and concern, and sometimes they failed. John Muir, for instance, observed havoc being wrought by grazing and other utilization of the beautiful Yosemite Valley in California and launched a furious writing campaign in such periodicals as Harpers, Century magazine, Atlantic Monthly, and various newspapers. He succeeded in publicizing his concerns to the point of rallying support for preservation of what became Yosemite National Park. He educated the public to a problem using the most powerful media available at the time, and the public and its politicians responded with preservation. Muir also provides an example of failure, for Hetch Hetchy Valley, comparable in many ways to Yosemite, was lost to a dam, despite Muir's best efforts. Though many natural resources were wasted and land destroyed, the overall effect of the efforts of such people in the second half of the century was to raise the general awareness of the public of resource management problems to the point where President Theodore Roosevelt could act decisively to control resource exploitation. During his two administrations, Roosevelt set aside over 150 million acres of national forest land, established the first wildlife sanctuary, withdrew eighty million acres of potential mineral-bearing land from the public domain, and established game refuges, national parks, and national monuments. Gifford Pinchot was one of his key advisors, and this pioneer forester's ideas about resource husbandry and conservation were central to Roosevelt's work. The President established a National Conservation Commission to oversee his natural resource programs and called a White House Conference on Conservation in 1908. All of Roosevelt's conservation action was in part made politically possible by increased public awareness of problems that had arisen from three hundred years of resource exploitation and neglect, and this awareness occurred in part as a consequence of the educational efforts of people like Muir and Pinchot.

It was during this "preservation phase" of the "conservation movement" that a specifically educational movement appeared. This was nature education and its goals were to help people understand and observe the natural environment. The assumption seems to have been, as Stapp has pointed out, that if people could become interested in nature, they would become concerned about environmental problems (2). Wilbur Jackman published Nature Study for the Common Schools in 1891 and was instrumental in bringing the nature study idea to the attention of educators. In 1896, Cornell University's College of Agriculture accepted the responsibility "to encourage nature study in rural schools" and began a long period of leadership in the field (3). The writings of Liberty Hyde Bailey and Anna Bostford Comstock of Cornell gave impetus to the nature study movement. The American Nature Study Society was formed in 1908 and is still active today. Over the years it has supported nature study through firsthand experience, encouraged preservation and educational use of natural areas, and sought to make nature study an important part of formal and nonformal education. It has not focused on environmental problems but rather has emphasized knowledge and awareness of nature.

Despite the emergence of the nature study movement, little progress in directing schools toward conservation education was made during the first three decades of the twentieth century. Swan notes that the educational philosophy of the period did not approve of study of current problems in schools (4). The Great Depression and environmental catastrophes such as the American dust bowl changed this philosophy somewhat. People's attention was drawn to the need for conservation. The Civilian Conservation Corps put three million young Americans to work on conservation projects. The Soil Conservation Service set out to educate farmers in erosion control and farm rehabilitation. Other resource management agencies, such as the Forest Service and Fish and

Wildlife Service, began preparing and publishing educational materials which would help them to manage resources. In short, awareness of the need for conservation increased dramatically, and in 1935 the National Education Association's Educational Policies Commission published a statement indicative of the effect of this awareness on educational thinking.

> Forests, soils, grasslands, water, minerals, oils, fish, game, and scenic beauty are among the rich natural endowments of the area of the North American continent covered by the United States. Realization of the basic importance of these resources, determination to utilize them for the common good through long-range planning, and general knowledge of appropriate remedial and preventive conservation procedures are among the marks of an educated citizen. Since future welfare and safety depend on those things, the schools may well assume considerable responsibility for checking the ravages upon the heritage of the nation made by ignorance, indifference, carelessness, and unbridled selfishness (5).

This view was widely embraced in the educational community and, coupled with the emergence of numerous government resource management agencies and the formation of private conservation organizations, led to legislative action authorizing conservation education programs. These programs were not always developed and funded, but the mandate and authority was present, and some school programs emerged. The U.S. Commissioner of Education called a conference on Conservation Education in Washington, D.C. in 1937, which indicates that conservation education had attracted significant attention of educators by that time.

Conservation education overlapped somewhat with nature education, but its concerns went beyond knowledge and awareness of the natural world to the problems of managing natural resources. Stapp has summarized its purpose well.

> Historically, the conservation education movement focused on assisting both youth and adults in understanding more

> fully the characteristics, distribution, status, uses, problems, and policies regarding natural resources. The movement was an effort to awaken Americans to the degradation of our natural resources, to help the public better understand the importance of natural resources to our society, and to develop citizen support for natural resource management programs (6).

It was concerned with problem solving, for the ravages of such disasters as soil erosion and forest resource depletion were evident to many people who sought ways of coping with the situation. There were limitations to conservation education, as Aldo Leopold noted in Sand County Almanac.

> Conservation is a state of harmony between men and land. Despite nearly a century of propaganda, conservation still proceeds at a snail's pace; progress still consists largely of letterhead pieties and convention oratory. On the back forty we still slip two steps backward for each forward stride.
>
> The usual answer to this dilemma is "more conservation education." No one will debate this, but is it certain that only the *volume* of education needs stepping up? Is something lacking in *content* as well? . . .. But education actually in progress makes no mention of obligations to land over and above those dictated by self-interest. The net result is that we have more education but less soil, fewer healthy woods, and as many floods as in 1937 (7).

Leopold identified a central problem of conservation education. Its natural resource orientation limited its perspective and effectiveness, for it did not allow consideration of the ecological wholes that Leopold knew were important, and it did not question any of the premises about natural resource exploitation that led to the resource management problems in the first place.

Another movement that must be mentioned in this review has been called the "school camping/outdoor education movement." The goals of this approach were to use outdoor environments to improve instruction generally and to use direct experiences in the outdoors to teach concepts of importance best learned there. While conservation education emphasized management of natural resources, and nature education focused on learning about the natural world, outdoor education was concerned about the best method to learn through firsthand experience of these two areas. It utilized camps and outdoor field experiences. Julian Smith, a pioneer of outdoor education, wrote of education "in" and "for" the outdoors and sought to apply outdoor learning methods to all components and subjects of the curriculum. This approach grew in popularity after World War II. Kirk notes that in the 1950's outdoor education became well defined as a means of enriching the curriculum and accelerating the rate of learning. Then, in the 1960's, awareness of environmental problems was stimulated by such best-selling works as Stuart Udall's The Quiet Crisis and Rachel Carson's Silent Spring. This caused educators to examine the school curricula to see how they could provide their students ". . .with a better understanding of their place and responsibility within the total spectrum of living and nonliving things (9)." According to Kirk, the educators best equipped to meet this need were outdoor educators who shifted their emphasis from the cognitive focus characteristic of the 1950's to a conservation focus in the 1960's. Outdoor educators concentrated on attitude formation in conservation. The goal of outdoor education shifted to development of attitudes of concern and appreciation for the outdoor environment and away from emphasis on knowledge of facts and concepts. Steve Van Matre developed an outdoor education approach in the late 1960's which he called "acclimatization" and which reflects this shift. He describes its goal.

> In short, the camper should come to "feel" his environment. To draw it close to him. To love it. To understand it--

> not for its labels and fables and fears--but as an intrinsic part of himself. Let's go at it with the idea that if we take care of our natural heritage now, then we'll have an American heritage later (10).

Rachel Carson has expressed the rationale of this approach to outdoor education as well as anyone. She writes:

> I sincerely believe that for the child, and for the parent seeking to guide him, it is not half so important to *know* as to *feel*. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow. The years of early childhood are the time to prepare the soil. Once the emotions have been aroused--a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration or love--then we wish for knowledge about the object of our emotional response. Once found, it has lasting meaning. It is more important to pave the way for the child to want to know than to put him on a diet of facts he is not ready to assimilate (11).

Outdoor education continues as an important element of what has now come to be called environmental education. Nature education and conservation education have also been drawn into a coalition with outdoor education, and the whole has grown into a new educational movement which embraces broader concerns.

The decade of the 1960's was marked by a gradually increasing understanding in America that prices were being paid for the high standard of living and affluence enjoyed by many Americans. The Second World War had banished economic depression, stimulated an explosion of technological innovation, and established the United States as the most rich and powerful nation in the world. This country emerged as the center of world technological development and reaped the economic benefits thereof. The promise of a peaceful and affluent world seemed possible, if not likely.

All was not well, however, for problems of new dimension and scale began to appear. Very effective pesticides, like DDT, lowered death rates from malaria and the world population growth rate increased. Atmospheric nuclear testing, carried out in the world's most remote regions, revealed that there is no "away" in the biosphere when traces of radiation appeared in animal tissues thousands of miles from the sites of the testing. Rachel Carson revealed to the public the interdependent nature of ecosystems in Silent Spring, her best-selling treatment of the pesticide problem. The travels of astronauts in space resulted in photographs of earth which indelibly conveyed the finite nature of the planet. In short, people began to realize that "conserving the back forty" was not sufficient to satisfy the imperatives of environmental citizenship. Thus awakened, people looked around and "discovered" dozens of serious problems that had escaped notice before.

The decade of the seventies opened with a massive demonstration of this new awareness on April 22, 1970--Earth Day. Emotional demonstrations, promises, and outpourings of concern occurred everywhere. Educators were not apart from all of this and reassessed their efforts and responsibilities in relation to what were now being called "environmental" and "ecological" problems. This reassessment led to the new term "environmental education" which was defined by Stapp and his colleagues as follows:

> Environmental education is aimed at producing a citizenry that is knowledgeable concerning the total environment and its associated problems, aware and skilled in how to become involved in helping to solve these problems, and motivated to work toward their solution (12).

Schoenfeld asked what was new about environmental education and found that conservation education is relatively narrow of concern, locally and rurally focused, largely scientific in method, and aimed at efficient resource development. Environmental education, on the other hand, is broad and more comprehensive in its concern, with global and urban in addition to local and rural focus, involving social scientific as well as natural science studies and involving interest in ethics and esthetics as well as economics (13). While its predecessors have been resource centered and primarily part of elementary education, environmental education is not only concerned with field and forest but also with human health and ecology. Further, while it involves schools, it also extends to adults. The "basic cultural orientation" underlying environmental education is the most important difference from its antecedents. Conservation, as Leopold pointed out, stood for economic development and "progress." But, as Schoenfeld notes, ". . .environmentalism reflects a growing suspicion that bigger is not necessarily better, slower can be faster, and less can be more (14)."

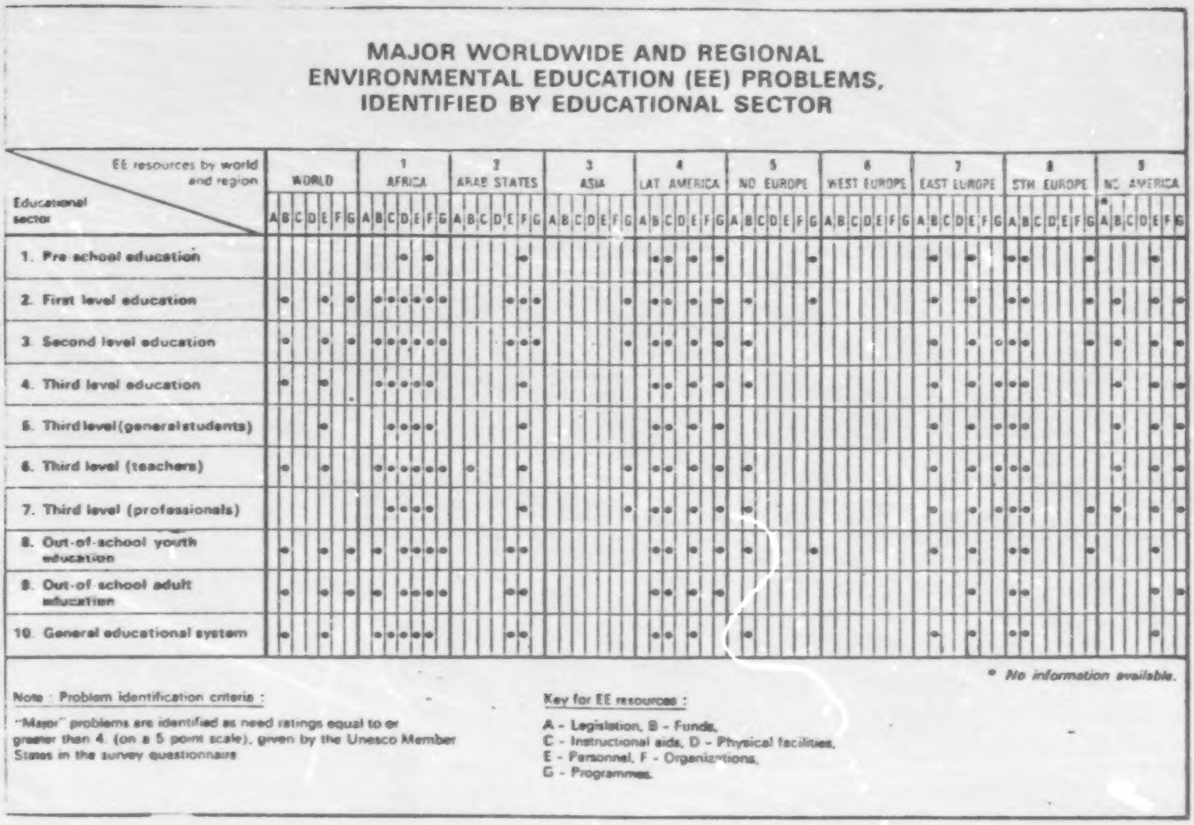
Thus, environmental education emerged as a process directed toward the acquisition of knowledge about environmental problems and development of attitudes, values, and skills necessary for environmental decision-making and problem-solving. In October of 1970 a National Environmental Education Act was passed by Congress, the primary purpose of which was to provide "seed money" for the development of environmental education materials and programs in the United States. An annual appropriation of slightly more than two million dollars was made each year for three years, and the Act was extended in 1974. Various states enacted legislation mandating environmental education, but the movement did not blossom into a major effort in American education.

There are several constraints that have limited the growth of environmental education. Many educators are unaware of environmental education and what its goals are. Others do not perceive it as of significance, believing in many cases that environmental problems are well on the way to solution. Still others bemoan an already overloaded curriculum and oppose additions to it. There has been disagreement among environmental educators on the form of environmental education. Should it be a separate subject, or should it be achieved through existing subject matter? During the ten years since environmental education emerged, much meaningful discussion of this and other questions has occurred, and many materials have been developed and curricula implemented. Many approaches are being attempted, but generally environmental education in American public schools is haphazard. Few school districts have effectively developed a scoped and sequenced curriculum and trained their teachers to implement it. A young person receives bits of environmental education here and there whenever he or she encounters a teacher who is motivated to provide it. The educational community simply has not, in any broad and systematic way, recognized the macroproblem and developed a systematic response to it. Bohl conducted a national survey in 1974 of the environmental knowledge of secondary school students. He found that high school students have a positive view of the environment and understand basic environmental concepts but have little idea as to how things can be changed to improve the environment or solve environmental problems (15). Childress studied a sample of public school environmental education curricula and concluded that practicing environmental educators perceived inadequate funding at all levels and lack of time to develop curricula as the greatest constraints to curriculum development (16). And Trent reviewed environmental education efforts in state departments of education and colleges and universities seeking to identify trends occurring in the 1970-75 period. He concluded that environmental programs appear to be improving in some areas and remaining static in others (17). He found no evidence of a flowering of environmental education in the sectors of American education that he studied.

In summary, environmental education in the United States has emerged as an ecological, interdisciplinary, problem-oriented focus in education from a long history of resource conservation and nature study efforts. It is a slowly emerging emphasis in American education. Numerous constraints operate upon it and its occurrence in the curriculum is sporadic. Its stated goals are broad enough to embrace the needs described in earlier chapters, but current emphasis is on the acquisition of conceptual knowledge and awareness rather than on problem solving. The current efforts address the first two of Fromm's conditions, but not the latter two.

From a global perspective, the United States is a leader in environmental education. Shaffer recently reviewed environmental education on the international scene and noted that "Among all nations the U.S. has assumed a leadership role in the development of EE programs at all educational levels (18)." What is happening in the rest of the world? Environmental education has been present in North America and Western Europe for many years in various forms but has not been a recognizable entity elsewhere. Recently it has emerged on the world scene largely as the result of United Nations involvement. The U.N. Conference on the Human Environment in Stockholm in 1972 recognized the need for an international environmental education program and established one as part of UNESCO and the United Nations Environmental Programme (UNEP). UNESCO made a world survey of environmental education needs and priorities in 1975, the results of which are summarized below (19).

FIGURE II



MAJOR WORLDWIDE AND REGIONAL ENVIRONMENTAL EDUCATION (EE) PROBLEMS, IDENTIFIED BY EDUCATIONAL SECTOR

EE resources by world and region
Educational sector
WORLD
1 AFRICA
2 ARAB STATES
3 ASIA
4 LAT AMERICA
5 NO EUROPE
6 WEST EUROPE
7 EAST EUROPE
8 STH EUROPE
9 NO AMERICA
A B C D E F G
1. Pre-school education
2. First level education
3. Second level education
4. Third level education
5. Third level (general students)
6. Third level (teachers)
7. Third level (professionals)
8. Out-of-school youth education
9. Out-of-school adult education
10. General educational system

* No information available.

Note : Problem identification criteria :

"Major" problems are identified as need ratings equal to or greater than 4. (on a 5 point scale), given by the Unesco Member States in the survey questionnaire

Key for EE resources :

A - Legislation, B - Funds,
C - Instructional aids, D - Physical facilities,
E - Personnel, F - Organizations,
G - Programmes.

Several interesting problems for environmental education curriculum development in underdeveloped countries emerged. Shaffer describes them:

> . . .the underdeveloped countries of the world seem to have the following problems in common: the trend to define education in accordance with standards from countries at an advanced industrial level; the fact that each subject has an independent programme, not co-ordinated with others, leading to (sic) disjointed type of learning; the fact that the natural and social environment are dealt with by two groups of disciplines, giving a distorted and incomplete vision of reality, and making it impossible to approach the environmental problems in a scientific and integrated

> manner; the theoretical approach to different subject matters, limiting practical exercises included in the curriculum to partial themes or phenomena (20).

These needs and problems internationally have been discussed at various forums around the world that have been organized by UNESCO-UNEP. The first of these meetings was held in Belgrade, Yugoslavia, in October, 1975. Out of this meeting came the Belgrade Charter, which defined the goals and objectives of environmental education and made specific recommendations as to how these could be achieved internationally. These definitions and recommendations were significant because they reflected a global perspective, including that of the developing nations which have different views on the mandates of environmental problems than their more developed counterparts. In the terms of this discussion, the macroproblem is more clearly recognized on the international scene than within the boundaries of the United States. Americans may place problems of poverty and equity behind ecological and pollution problems, but a worldwide perspective elevates these problems to a position of greater importance. This is a positive development for one seeking an adequate educational response to the macroproblem.

The Belgrade Charter contained "Guiding Principles of Environmental Education Programmes" which are important in their scope. These principles are:

1. Environmental education should consider the environment in its totality--natural and man-made, ecological, political, economic, technological, social, legislative, cultural and esthetic.

2. Environmental education should be a continuous life-long process, both in school and out of school.
3. Environmental education should be interdisciplinary in its approach.
4. Environmental education should emphasize active participation in preventing and solving environmental problems.
5. Environmental education should examine major environmental issues from a world point of view, while paying due regard to regional differences.
6. Environmental education should focus on current and future environmental situations.
7. Environmental education should examine all development and growth from an environmental perspective.
8. Environmental education should promote the value and necessity of local, national and international cooperation in the solution of environmental problems (21).

These principles represent the distilled thinking of environmental educators worldwide until 1975. Such principles reveal an awareness of the educational task along the lines described in the previous chapter.

The Belgrade meeting was followed by regional meetings around the world, and then by a ministerial-level environmental education conference in Tbilisi, Georgia, USSR in October of 1977. Delegations from approximately 70 countries attended, and approximately 40 national and international recommendations were eventually adopted. These recommendations form an action plan for worldwide environmental education development. UNESCO pledged increased support which may take the form of aid for pilot projects, a "bank" of environmental education experts, and appointment of environmental education specialists in Regional Offices to promote curriculum development, teacher training, and cooperation in the environmental education effort. Stapp sums up the meeting by noting that ". . .there was a remarkable amount of agreement at the conference at both the conceptual and strategy levels between the developing and the developed countries, the Eastern and Western European countries, and within the developing countries (22)."

These meetings taken together testify to a growing worldwide recognition of the importance of environmental education. They indicate a willingness to transcend political and economic ideology in order to address the world macroproblem in a cooperative and organized manner. Only a tiny percentage of the world's people experience a significant environmental education today. Indeed, many people experience little, if any, formal education. Where formal education does occur, and environmental education is a part of it, priority is upon pre-primary and primary levels, and emphasis is given to the natural environment. A few programs deal with the social environment, addressing food, hygiene and health as problems of the environment, but they are relatively few (23). Still, the principles that emerged in Belgrade, and the commitment to an increasing effort evident at Tbilisi, are positive signs for an increasing educational response worldwide to the macroproblem previously described. And the nature of that response is important. Stapp, the principle architect of these international developments, points out the significance of the approach being taken.

> It would be difficult to overestimate the importance of the kind of environmental educationthat the UNESCO/UNEP programme seeks to promote.

> The problem-oriented approach to environmental and natural resources research has brought the scientific research worker and the decision maker closer together. The researcher recognizes the need to provide unambiguous scientific findings on which the decision maker can base his actions. The decision maker has become aware of the complex process that his actions inevitably entail.
>
> But in the final analysis, the last word remains with the general public upon whose will both scientists and decision makers depend. Unless people become more fully aware of the world around them, more sensitive to their total environment, the will to achieve essential environmental goals will still be lacking. To inculcate awareness and understanding of the problems of the environment is not enough; it is not enough to affect the individual in his beliefs, attitudes, and values unless there is a carry-over into his behavior, into the everyday decisions he makes.
>
> The ultimate aim of environmental education, therefore, must be to produce an environmentally literate world society, the *sine qua non* of any attempt to achieve real harmony between man and nature. Environmental education, we might say, is "not so much a programme, more a way of life (23)."

If this view of environmental education is widely adopted and inspires program development, then the conditions that Fromm describes can perhaps be met. "Environmental literacy" will lead to reflection on environmental problems and beliefs and values underlying them, and change in behavior may occur. The international environmental education effort is only six years old and faces immense obstacles in the international scene. In the total spectrum of international programs it is a tiny infant of relatively little current significance, yet its birth gives cause for hope that as it matures it will contribute to solution of the world macroproblem.

The purpose of this chapter has been to summarize the educational response to the world macroproblem. It has indicated that a worldwide educational effort called "environmental education" has emerged in the past decade in response to growing awareness of environmental problems. It emerged from a long history of educational effort, principally in the United States, aimed at teaching people about nature and natural resources and the need to conserve them. The current educational effort is broader in concept and in its goals than its predecessors and reflects the ecological and global nature of the macroproblem. The effort is diverse, with excellent programs being provided to some people, and no programs to others. It is in its early stages, with constructive arguments raging among educators as to what priorities and emphases should be. And it is constrained by many forces within and outside of the educational community.

Such a review indicates that education's response to the macroproblem has been limited and conservative until very recently. In the late 1970's, Stapp and others are recognizing the scale of the project they have undertaken. They are beginning to describe it as involving ". . .a way of life." Allen has noted that "The battle for environmental quality, and indeed, our survival as truly *human* beings, will be won or lost in the minds and hearts of humankind (29)." Environmental educators are, independent of Fromm, coming to the conclusion that a "change of heart" is necessary, and they agree that it is a possible though immensely difficult task.

They have come to realize, as Leopold pointed out thirty years ago, that merely more education is not enough. Rather, attention to content is essential. Leopold thought that the content of conservation education was too simplistic, for it ". . .defines no right or wrong, assigns no obligation, calls for no sacrifice, implies no change in the current philosophy of values (25)." Environmental education raises serious questions about ethics, obligation and values. Perhaps the content is changing so that obligation is becoming based on a broader humanistic and ecologic ethic that transcends the economic self-interest that Leopold criticized as the dominant conservation motive of his day.

With this background, then, the next task in this discussion is to focus on several developments in education which have not been formally incorporated into environmental education, but which have much helpful theory and method to bring to it. They may prove to be especially helpful in attaining the humanistic and ecologic ethic that is emerging as the primary goal of environmental education.

Footnotes

Chapter IV

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5. Malcolm Swan, "Forerunners of Environmental Education," p. 8, quoting Robert Steele Funderburk, The History of Conservation Education in the United States (Nashville, Tennessee: George Peabody College for Teachers, 1948), pp. 30-31.

6. Stapp,"Historical Setting of Environmental Education," p. 46.

7. Aldo Leopold, A Sand County Almanac (New York: Oxford University Press, 1949), pp. 207-209.

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19. United Nations, Environment Programme, "The Belgrade Charter," *Connect*, 1, 1 (January, 1976), p. 5.

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21. "The Belgrade Charter," p. 2.

22. William B. Stapp, "Impressions on the First Intergovernmental Meeting on Environmental Education," *Journal of Environmental Education*, 9, 2 (Winter, 1978), p. 4.

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24. Rodney F. Allen, "But the Earth Abideth Forever: Values in Environmental Education 'Etc.,'" in John Meyer, Brian Burnham, and John Cholvat, eds., *Values Education: Theory, Practice, Problems, Prospects* (Waterloo, Ontario: Wilfrid Laurier University Press, 1975), p. 23.

25. Leopold, *A Sand County Almanac*, pp. 207-208.

SECTION II

INTRODUCTION

The background has been covered. The next task is to suggest directions that environmental education might take in order to address the world macroproblem more effectively than it has so far. The goal is to construct a theoretical framework which will allow environmental education to address the tasks suggested by Harman and Fromm. All that is really needed is a strengthening of the existing frame that environmental educators have constructed, the addition of new elements to the substantial body of work already existing.

Two developments in modern education are examined for what they can contribute to environmental education. One of these is humanistic education, an educational philosophy and set of teaching models that have emerged in American education in the past quarter century. This approach to learning has much to contribute to environmental education because of the learning situation which it can create. If a basic aspect of the educational response to the macroproblem is critical assessment and change of values, premises and perceptions, then the methods of humanistic education seem appropriate to create a learning environment in which this difficult task can be accomplished.

The second element of education to be explored is less a philosophy or method than an approach. It is called "experiential education" and utilizes learning processes that require the learner to go beyond traditional abstract and classroom-based study to embrace the world itself as an educational setting. If environmental education's goal is a holistic as contrasted to a reductionistic understanding as an approach to action, then experience of environments and problems in total environmental context seems to hold great potential for contributing to such understanding.

How can humanistic educational philosophy and method and the experiential approach to learning be combined with environmental education curricula for more effective learning? The last part of this section will attempt to explain how this connection has been and is being accomplished. Specific examples will be used to illustrate ways than an experiential, humanistic environmental education might be achieved--the EHEE Connection.

CHAPTER V

HUMANISTIC EDUCATION AND ITS CONTRIBUTION TO ENVIRONMENTAL EDUCATION

"I think you're nuts if you think you can get people to be concerned about nature, about trees and birds and stuff like that," said Charlie, kicking at a clump of grass. "People don't care. They don't care about anybody but themselves. Most don't even love themselves, and you think you can get them to love nature? Forget it!"

Joan carefully dropped the tiny carrot seeds into the furrow and rolled the soft loam on top of them, patting the soil to compact the seeds in place. A bell-like ringing, like a telephone, came from down the street.

"Look at that!" she said. "That crazy flicker is beating on the top of the electric transformer again. He's been doing that all spring. He can't be getting much food out of it, so maybe he just likes the ring of it, like singing in the shower."

She watched the big bird for a minute, then went back to her planting.

"You may be right, Charlie, but I don't think so. Many people seem not even to care about other people or even themselves, yet there are examples all around of people who do care. There's a lot of humanitarian work being done. It may be a small percentage, but it

provides the example."

"Yeah," scoffed the other, "these are the do-gooders, folks who've got money and time to waste, housewives with nothing else to do, richies who are improving their images as community leaders and salving their consciences for all the damage they've done making their bucks. I'm not impressed."

"Don't be so bitter, Charlie. There are altruistic people who just want to help because they believe in love and justice."

"I suppose there are some," he admitted, "but not many."

"The point I'm making," said Joan earnestly, "is that we've got to increase the number of folks who care about themselves and their fellows. I think that before people come to care for nature, the non-human part, they must love themselves and their neighbors. Then they can go on to concern for the environment, and it'll be a concern for people and non-human members of the community together."

"But how do you propose to do this, Joan? It seems such a huge job, like swimming against the tide, like the mythological Sisyphus forever pushing his marble block up the hill."

"A little bit at a time, Charlie. That's all. I want to set an example. That's a start. I want to testify to my love for people and nature by caring for them. And I have a special opportunity as a teacher. I can help the kids learn to be honest and open and caring. I can help them learn cooperation, can awaken them to the realities of life on this earth, teach them that not everyone has it as good as they do. There's a lot I can do with my kids, and if I succeed with a few of them, they'll carry on the work."

Charlie was thoughtful, watching the swallows darting back and *forth. "Maybe so," he said, "maybe we can do it."*

* * * * * * * * * * * * * * * * *

The man from the park service looked very upset. He didn't think his underlings were doing their job.

"You're supposed to be teaching environmental awareness. That's what the guidelines say, and you say you haven't done any nature study at all. You've been here two weeks. What've you been doing? I thought you people were the experts in environmental education."

Dave controlled himself very well. He knew he had a chance to educate this guy, and didn't want to blow it.

"We are teaching environmental awareness."

"How could you. You haven't done any nature study."

"When we first came in here," Dave went on, "these kids didn't know each other. Some are farm kids, some from the city. Some are big and some small, some confident and most anxious. They didn't hit it off right away. In fact, a couple of people, trying to exert control over the others, were rather mean. They tried to set up a pecking order."

"So? What's that have to do with environment ed?"

"I'm getting to that. So the first job we had to do was try and bring about a pleasant social environment. We did some interpersonal things, giving the kids a chance to share something of themselves and to get acquainted. We played some initiative games, and tried to build some group cohesion. We worked to air the gripes and build a situation where people could be open and honest with each other, where they could and would cooperate. I think we've got to that point now."

"The group seems pretty content," the man admitted.

"And all of this," Dave went on, "is environmental education. I know you think EE is learning what comprises this forest community and coming to appreciate it, and that's part of it. But it's also coming to know oneself, and learning the value of cooperation. Some of these kids have trouble getting along in that world out there, from which they now have a six-week reprieve. They have an 'I'll get mine and to hell with you' attitude. We think that attitude, perhaps more than any other, is responsible for what we are calling environmental problems. And we think that if we can help these kids believe in themselves and in each other, that it will be the beginning of a change in them that will in future work to the benefit of the environment."

"I still don't quite see it," the park service man said. "While they're up here they have a unique chance to learn about this place. Don't you think they should?"

"Of course I do, but if they have a positive experience up here, they'll want to learn, might even want to come back later for further study. You know, sir, some of these kids are told by parents, teachers, and others in authority, that they aren't worth much. If they think that, then they won't be very effective in putting their knowledge and appreciation of this environment to use. They won't think that their opinions and feelings matter, so won't participate in decision-making. Maybe they just won't care. But if they do have a positive self-image, they can take knowledge and put it to use."

"I see your point," the parks representative said. "I don't know how that's going to show up on the Environmental Awareness survey that we have to give. We've got to show improvement in awareness or we might not be funded for this program."

"Don't worry, sir, there will be improvement. Just being in this place will see to that."

* * * * * * * * * * * * * * * * * * *

At this point, having summarized the macroproblem and set education up as part of the solution to the problem, the next step is to suggest precisely how education can do this. As the above vignettes suggest, humanistic education, when integrated with environmental education, is necessary to a successful educational effort. The first step, then, is to define humanistic education.

Clute offers a concise definition: "Humanistic Education is a commitment to education and practice in which all facets of the teaching-learning process give major emphasis to the freedom, value, worth, dignity, and integrity of persons (1)." The central element of humanistic education is its recognition that each person is unique, autonomous, and endowed with an inclination toward growth. Humanistic psychologists argue, as is summarized succinctly by Moustakas, that a tendency toward growth is innate. "As long as a person maintains the integrity and uniqueness of his individual nature, growth of the self (which begins at birth) continues throughout life. . .. The self by its nature is inclined to grow and moves toward an evolving identity and individuality that has an irrevocable biological basis (2)." Humanistic education arose in response to the challenge posed by this view of human learning. Psychologists and educators sought to explain why many people did not grow throughout their lives, and worked to develop teaching-learning models that would facilitate a lifetime of learning.

Another contribution of humanistic psychology that influenced education was its recognition of the integrated wholeness of the person. Common sense indicates that mind and body, head and heart are all connected, that whenever the mind is engaged, so is the body, and that thought cannot be freed from emotion. Much educational practice, however, proceeded to attend only to the cognitive development of the person, and was content to ignore the affective qualities of that person. Combs, Richards and Richards have noted:

> Some writers have made a distinction between intellectual behavior and emotional behavior. . . .We cannot separate intellectual or cognitive from emotional or affective functions. All our experience and behavior is always a function of the total perceptual field at a given moment. Some events seem to us to be more closely related to ourselves and may be accompanied by more or less tension (or emotion). In this sense, some events are more likely to be matters about which we have definite feelings than others, but no human functioning can ever be purely intellectual or emotional (3).

Educators who embrace this view of humankind work to incorporate it into the organization of learning experiences. They bring together the affective or emotional aspects of experience and learning with the cognitive or intellectual functioning. Brown has called this confluent education (4), and Clute has recorded a comprehensive list of the goals of this approach to education as follows:

Humanistic Education:

1. Accepts the learner's needs and purposes and develops experiences and programs around the unique potentials of the learner.

2. Facilitates self-actualization and strives to develop in all persons a sense of personal adequacy.

3. Fosters acquisition of basic skills necessary for living in a multi-cultured society, including academic, personal, interpersonal, communicative, and economic proficiency.

4. Personalizes educational decisions and practices. To this end it includes students in the processes of their own education via democratic involvement in all levels of implementation.

5. Recognizes the primacy of human feelings and utilizes personal values and perceptions as integral factors in educational processes.

6. Develops a learning climate which nurtures growth through learning environments perceived by all involved as challenging, understanding, supportive, exciting, and free from threat.

7. Develops in learners genuine concern and respect for the worth of others and skill in conflict resolution (5).

Humanistic education, then, attempts to engage the whole person of the learner in his or her learning process. It recognizes the uniqueness and value of the learner. It is concerned with self-concept, for evidence from humanistic psychology indicates that a person's view of self is a determinant of intelligence, human adjustment, and success and self-realization in any aspect of life. Most important of all, humanistic education proceeds from the basic principle of learning most concisely stated by Combs.

> Any information will affect a person's behavior only in the degree to which the learner has discovered the personal meaning of that information for him or her. Effective learning must be personally relevant. Affect is only an indication of the degree to which any concept, idea, or perception has personal relevance. The closer the event to the self, the greater the degree of emotion or affect (6).

Thus the humanistic educator strives to relate to the perception of the learner, to constantly check assumptions, to maximize his or her understanding of the learner's point of view and to respect it in order that the most effective learning situation can be created (7).

Having thusly defined humanistic education, the next question is how this approach to learning relates specifically to coping with the world macroproblem. Why should environmental education look to humanistic education for assistance in its pursuit of its objectives? Bennett and his associates have noted that environmental education involves concepts, attitudes, and skills and teacher roles. Cognitive knowledge of facts and concepts is essential in environmental education, but simply knowing facts and concepts alone does not necessarily lead to appreciation and motivation to work for a better environment. In order for these essential elements to emerge, feelings such as a healthy self-image, a sense of social responsibility, a sensitivity to the environment, and an appreciation of learning must be present (8). Coupled with facts and concepts, these feelings may lead to effective behavior and problem-solving. Teaching and learning models that address the goals of humanistic education can effectively bring about this necessary coupling of facts and feelings.

One of Harman's observations relates to this point. He perceives need for a new concept of education and notes that "Training is especially needed in making that combination of reality perception and value judgment which Geoffrey Vickers has termed 'appreciation,' and in dealing with complex wholes--in viewing self and social situation in their full ecological, cultural, and historical context (9)." Education must couple the cognitive ("reality perception") with the affective ("value judgment") and must try to help the learner perceive himself or herself as part of a whole. The emphasis here is on the self, the "real" self as one experiences it, not an abstraction described from outside the person. The "appreciation" has been described by some as "love." A person who loves is one who takes on responsibility and is concerned about and cares for the other. Respect for the other and deference to its needs characterize a love relationship. Harman calls for an "ecologic ethic" and a "self-realization ethic" to replace the "growth and consumption ethic" that directs much contemporary behavior (10). An "ecologic ethic" will involve not only knowing the facts about interdependence and the natural scheme of things, but a feeling of responsibility for and concern for the welfare of the natural world. This is love of nature. The "self-realization ethic" will mandate development and growth of the emergent self and the human species as the proper end of experience and suggest that the function of social institutions is to create an environment that will foster this process. Love for fellow humans will be the essential ingredient of such an ethic, and were it to emerge it would alleviate many of the difficulties that Schumacher and Fromm identify as inherent in contemporary social systems. The point is, in short, that the teaching and learning models identified as humanistic seem to hold the greatest potential for realization of the learnings that Bennett and Harman identify as necessary to coping with the macroproblem.

It might be well to inject at this point the caveat that no argument is made that only humanistic education holds the key to effective environmental education. There must be no misunderstanding on this point. Rather, humanistic teaching and learning models seem necessary but are probably not sufficient to accomplish the goals of environmental education. Information processing models such as inductive thinking, inquiry training, and cognitive growth contribute to intellectual functioning, the ability to organize data and employ verbal and nonverbal symbols, among other things. Joyce identifies four families of models of teaching: social interaction models; information-processing models; personal models; and behavior modification and cybernetic models (11). All of these families of models can contribute to effective environmental education. But as Joyce points out, "Certain models are more appropriate for some curriculums than for others. . .(12)." Social interaction models and personal models are appropriate in a curriculum which aims to create the conditions Fromm describes and to generate "appreciation" and motivation. Coupled with information processing models, these models of teaching will allow environmental education's goals to be reached.

Returning to the question, "Why humanistic education?," a second answer is that it allows for the self-study necessary to achieve Fromm's conditions. As noted earlier, Fromm argued that human character can change if people become aware that they are suffering, recognize the origins of their ill-being, perceive that they can improve their condition, and learn how to do so. Humanistic education utilizes processes that can contribute directly to achievement of these conditions. A person may, for instance, be confused about his or her goals and values. Where should energies be directed? Why is activity engaged in not satisfying? Educators have developed a process called values clarification, the aim of which is to illuminate and clarify the choices available to a person. Specific exercises allow people in groups to explore their values and those of others, to compare and contrast their views on difficult issues of choice. Values clarification was originally conceived as an antidote to confusion among school children as to what to believe in. Raths and his associates described the problem that led them to develop values clarification as follows:

> Could it be, we wonder, that the pace and complexity of modern life has so exacerbated the problem of deciding what is good and what is right and what is worthy and what is desirable that large numbers of children are finding it increasingly bewildering, even overwhelming, to decide what is worth valuing, what is worth one's time and energy. Life is certainly less neat and simple than it was even a few generations ago. "A perfection of means and a confusion of goals" is the way Einstein characterized this age (13).

While values clarification was developed initially for children, people of all ages have found it useful. It is one technique useful in combating what Morgenson calls "existential neurosis," a condition comprised of meaninglessness, an inability to believe in the value of activity one is engaged in, of emotional blandness and boredom, and of low activity and apathy (14). People lose their self-respect through their inability to confront their problems and loss of faith in their ability to direct their future. Thus they suffer ill-being, in Fromm's terms. Values clarification is one way of facing up to the choices, learning what they are, and assessing what one knows and how one feels about these choices. It then encourages choosing and acting upon the choices. All of this is a process of self-examination helpful in achieving Fromm's conditions.

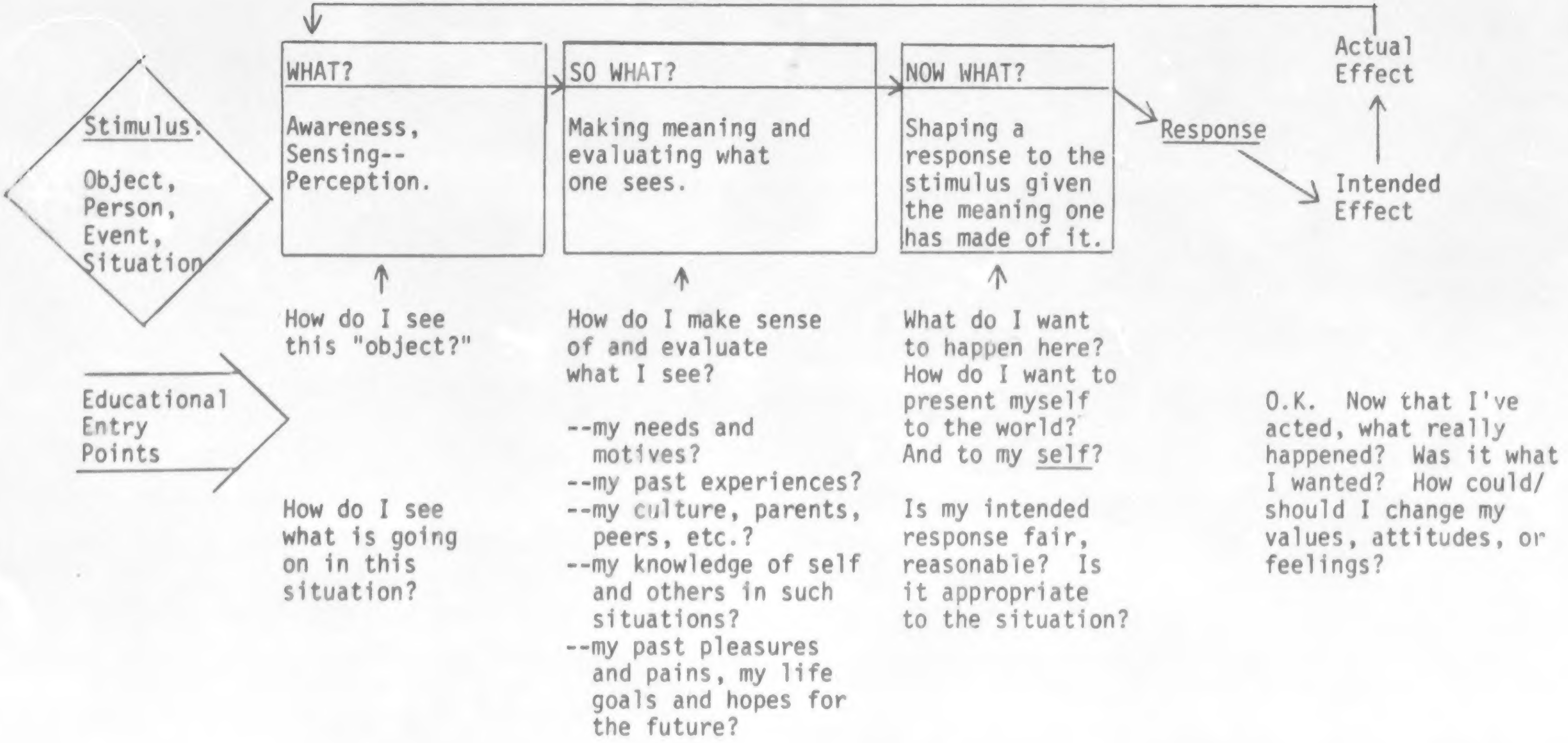
Another way in which humanistic education encourages learning about the self, particularly for people in formal school situations, is through its recognition of the freedom and integrity of persons as learners. Students are encouraged to identify personal goals, and curriculum is developed to fit their goals and learning styles. This very process of working on one's purposes is invaluable, for it requires that a person ask deep personal questions. When curriculum is specified and students simply do what they are told, they do not have to ask the hard questions about what it is important to know and why. When given freedom and responsibility for their learning, they learn to make decisions and live with the consequences. They learn that they have responsibility for their own lives, that they are active agents in their world, and this has many consequences for motivation. They study the external world and their internal world simultaneously. External phenomena are examined in relation to internal realities. There is a constant feeding back between the "I" and "Thou." Borton has described this process and Allen has diagrammed it in Figure III. In such a process people study facts and concepts and analyze them in terms of their personal frames of reference. The stimulus may come from a teacher, or the student may encounter it on his own, but in humanistic educational process the student is encouraged to "make meaning" based on his or her personal perception, not on the basis of some externally-imposed standards or values such as those of the teacher. But, some might respond, is this not pure subjectivity and therefore inadequate? Perhaps the teacher's greater knowledge allows more complete perception of the stimulus. Undoubtedly it does in many instances, but as Combs has pointed out, it is the learner's growing knowledge that is the issue here. Fromm has noted the importance of the subjective in objectivity, the reality that the subject and object are not poles.

> Objectivity requires not only seeing the object as it is but also seeing oneself as one is, i.e., being aware of the particular constellation in which one finds oneself as an observer related to the object of observation. Productive thinking, then, is determined by the nature of the object and the nature of the subject who relates himself to his object in the process of thinking (15).

All of this simply means that the learner has the opportunity, indeed is even forced in humanistic educational processes, to integrate fact and

FIGURE III

MORAL REASONING: EMPATHETIC MODE (16)


Stimulus:
Object, Person, Event, Situation
Educational Entry Points
WHAT?
Awareness, Sensing-- Perception.
SO WHAT?
Making meaning and evaluating what one sees.
NOW WHAT?
Shaping a response to the stimulus given the meaning one has made of it.
Response
Actual Effect
Intended Effect
How do I see this "object?"
How do I see what is going on in this situation?
How do I make sense of and evaluate what I see?
--my needs and motives?
--my past experiences?
--my culture, parents, peers, etc.?
--my knowledge of self and others in such situations?
--my past pleasures and pains, my life goals and hopes for the future?
What do I want to happen here? How do I want to present myself to the world? And to my self?
Is my intended response fair, reasonable? Is it appropriate to the situation?
O.K. Now that I've acted, what really happened? Was it what I wanted? How could/should I change my values, attitudes, or feelings?

concept into the spectrum of what he or she knows. This in turn forces questions like "What do I know?" and "What should I know." These are parts of the question "Who am I?," and continual pursuit of the answer to that question can lead to awareness of self necessary to Fromm's conditions for change. Rogers has observed that "Significant learning takes place when the subject matter is perceived by the student as having relevance for his own purposes (17)." To sum up the point here, humanistic educational processes allow the freedom and provide the opportunity to assess these purposes and recognize them and thus allows for significant learning to occur.

A third reason to bring humanistic education together with environmental education is that it can help provide the type of learning environment necessary for asking the hard questions that environmental problems involve. Harman has pointed toward the proper direction here.

> Educational environments for facilitating re-examination of basic premises, values, attitudes, and perceptions tend to be characterized by a non-evaluative, low-threat, open, permissive atmosphere, wherein individual perceptions and feelings assume at least as much importance as knowledge about values and beliefs, and wherein the individual feels safe in considering the possibility of change (18).

The goals of humanistic education described earlier by Clute explicitly include creation of a free and supportive learning environment. Thus, when in the course of environmental education students are put in the position of evaluating a public practice or policy, of questioning a commonly accepted premise such as "bigger is better" or "technology will save us," they will be able to do so without feeling that they must come to a specific conclusion in order to achieve a desired grade and gain the approval of the teacher and the group.

Rogers describes several hypotheses about learning that relate to the point here. One is that humans have a natural potential for learning, and another is that learning occurs when the subject being studied relates to the interest of the student. Both points have been made already in this study. He then describes three principles that relate directly to the current argument for relating humanistic and environmental education.

> Learning which involves a change in self-organization--in the perception of oneself--is threatening and tends to be resisted.
>
> Those learnings which are threatening to the self are more easily perceived and assimilated when external threats are at a minimum.
>
> When threat to the self is low, experience can be perceived in differentiated fashion and learning can proceed (19).

The relevance of these principles to the point here is clarified by an example. A student grows up believing that the primary measure of value is money. Thus he sets his sights on a lifetime dedicated to acquisition of money and all of the good things it can buy. Then he or she encounters, either in person or through their works, someone who eloquently argues for other sources of value, someone who even rejects money as a very important determinant of worth. Frugality, simplicity, and love for nature and other people might be central to this alternative value system, and money or the pursuit thereof may often deny these values. Furthermore, the latter set of values seems to the student more reasonable in terms of the environmental constraints he or she has learned about than that based on monetary values. If people bought and consumed less, the available resources would go further. This whole encounter raises contradictions within the student and necessitates a reappraisal of values. Two responses are possible. The first is that the alternative values are rejected in order to avoid the necessity of reappraisal. The status quo is defended. In the second case, the contradictions are confronted and the student seeks ways to remove the dissonance that has been created. Alternatives are evaluated and a new position taken. Learning occurs on this second path, but a change in self-organization is required and, according to Rogers, teachers who want such learning to occur must create the conditions in which it is most likely to occur. The creation of these conditions is perhaps the major *raison d'etre* of humanistic education.

Such conditions are not created merely by application of a set of techniques but involve the whole relationship between teacher and student. Processes such as values clarification or a values inquiry are necessary, in an instance like that just described, but will work only if the teacher facilitates them with a spirit of openness, respect, and care. The temptation may be great for an environmental educator to subtly or even overtly pressure the inquiry toward a certain outcome, but if this occurs the spirit of freedom that is the essence of the humanistic approach is absent. The teacher should be honest about what he or she thinks, but probably should state a position only if asked, and then only by coupling the position statement with a clear indication that "This is my position, and it is personal. Whatever you decide is just as legitimate."

Essential also is communication to the student that the teacher genuinely cares about him or her. Caring involves knowing the person, respecting him or her as a unique being. The importance of this cannot be understated. It is certainly not possible to deceive the student into thinking he or she has the freedom and support to take risks and enter onto threatening ground when in fact he or she does not. Samples and his colleagues have made this point well.

> If people are honest, love themselves, and their motivation is directly linked to their behavior. . .they teach far more of worth than those things identified simply as the "curriculum." They teach themselves as an image of humanness that their students can touch and find real.
>
> When such a teacher comes to a student and says, "That's really good!," the student knows that the teacher actually thinks it is good. But because the student is likely to have experienced many adults who have lied in the name of such educational strategies as *positive reinforcement*, the student will know the difference (20).

The good teachers are those who love their work, and a part of that must be a love for the student, a genuine desire to know the student and assist in that person's growth. Rogers calls this capacity "empathic understanding," the ability to understand the student's perspective, an appreciation for the learner's perception of his or her reality (21). Combs agrees with this and goes further to point out that acceptance of the person's feelings, attitudes, beliefs and understandings is a part of caring (22). If the teacher enters into a genuinely human relationship with the learner, the potential for the kind of learning that is essential for effective environmental education is greatly enhanced.

These arguments have been made largely in reference to teachers and children. While they are of direct significance for schools and school people, they hold no less for adult educational settings, both formal and nonformal. People of all ages have the same needs for acceptance and support. Perhaps the need for a supportive learning environment is even greater for adults, for their belief and value systems are more fully developed and have much more invested in them than those of young people. They have organized their lives around their choices, and when they confront the possibility that they should adapt and change they can become very upset, even disoriented. They can also, obviously, be very resistant to change and can work themselves into states of anxiety when they know that the situation calls for personal change and reorganization yet cannot bring themselves to make adjustments. At times like this, genuine care and support are essential to growth.

A necessary quality of environmental education is holism, and humanistic education can make a contribution to its attainment. This is a fourth reason for the humanization of environmental education. Several people have argued that one reason for the existence of the macroproblem is the prevalence of fragmented and reductionistic thinking in the world today. Knowledge has been organized into disciplines, and people have become increasingly specialized in their knowledge. This has all been to good purpose, for much understanding of the nature of things has resulted. It has become clear in the past century, however, that knowledge only of the parts is not sufficient to a complete understanding of nature (23). In addition, linear thought which involves the setting of goals and the pursuit thereof regardless of secondary or tertiary effects has been indicated as partially responsible for many environmental problems. It seems that it is necessary to consider whole systems, to recognize the reciprocal and interdependent character of these systems (24). The behavior of wholes has been found to be greater than merely their summed parts. If a person wants to understand and predict the behavior of the whole, whether it be a biological or social system, then study must be focused on that entity.

All of this is significant for education because it suggests that learning about the environment must be holistic. Harman argues that people must learn to deal with complex wholes, to perceive ". . .self and social situation in their full ecological, cultural, and historical context (25)." McInnis has stated this point as follows:

> The planet's numerous environments are distinct from one another, but they do not function in separate detachment from one another. The separate detachment which characterizes the functioning of our disciplines of knowledge, and the separate detachment enforced upon those who are learning, have increasingly limited survival value for the human species (26).

He argues for an education that "thinks the world together" rather than apart, as he believes traditional disciplinary education has done.

> If we are to think the world together, to comprehend (com = together; prehend = take) it as a single fabric, we must develop a new educational strategy to complement the existing ones. We must develop a strategy for teaching/learning the earth whole (27).

The attainment of such education will involve many elements such as particular learning environments, teaching styles, subject matter, and learning resources. McInnis thinks that an essential ingredient of environmental education, which he defines as "a way of teaching and learning," is a learning environment in which students experience their possibilities or "learn to become possible." They learn this by encountering each other, the teacher, and the diverse environment that surrounds them. They learn that they themselves are an environment and that the boundaries separating them from other environments are not as clear and solid as outward appearances would indicate. They learn further that no environmental factors, including themselves, are separate from any others. Thelen makes a point relevant here.

> To correspond with the view of the wholeness of the child, the environment is to be conceived in its wholeness as a

> micro-society, complete with such considerations as materials, loves, social relations, formal and informal structure, long- and short-range goals, and values and aversions. All aspects of life should be available for examination, and the aspects most salient at any particular time should be faced (28).

The learning environment, as Thelen indicates, is replete with opportunities to study one's place, to examine the self and social situation in context, as Harman requests. Humanistic teaching and learning models seem to provide the greatest likelihood that this type of learning will occur, for they do not structure and dictate what is to be learned as much as other approaches do. Further, they allow for engagement of the whole person in the learning enterprise, as was noted earlier, and that seems essential to the holistic education envisioned here.

Another argument for humanistic environmental education is that humanistic education is effective education. There have been many arguments between people who content that the primary aim of education should be to teach students how to be better people--the humanistic aim--and those who argue that the aim must be to teach students the basic technical skills they need to get along in society. These arguments have often been made in either/or terms, but the truth seems to be that both types of education are necessary. In fact, evidence is mounting that acquisition of technical skills--the "3 R's," for instance--proceeds more effectively in learning environments of the humanistic type described here.

A major study was recently undertaken by the National Consortium for Humanizing Education to test the hypothesis that "the higher the levels of understanding, genuineness and respect a teacher gives to students, the more the students will learn." The relationship between teachers' levels of interpersonal functioning and student levels of performance were studied using Flanders Interaction Analysis, which categorized classroom interactions between teachers and students; the Metfessel, Michael and Kirsner Instrumentation of Bloom's Taxonomy of Educational Objectives which classified cognitive content; and Carkhuff's Interpersonal Process Scales for evaluating individual levels of teacher interpersonal functioning in relation to students (29). An experimental design involving training of teachers in interpersonal skills and measuring student learning outcomes of such teachers as compared to controls was used. The result was a statistically significant validation of the hypothesis. Relevant findings are summarized as follows:

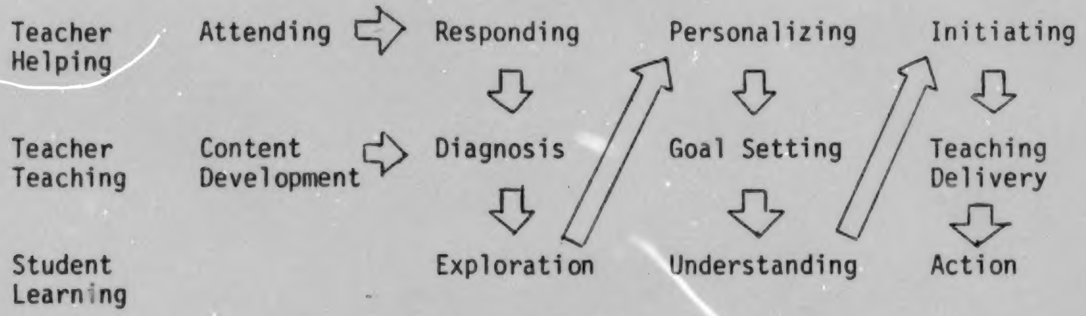
> Finding 2: There is a positive and significant relationship between teachers' levels of interpersonal functioning and students' gains on achievement test scores.
>
> Finding 3: There is a positive and significant relationship between teachers' levels of interpersonal functioning and student attendance.
>
> Finding 4: There is a positive and significant relationship between teachers' level of interpersonal functioning and enhanced student self-concept (30).

These findings indicate that humanistic education is effective education, that the aims of educating for human growth and for technical skills are interdependent, and that teachers must possess interpersonal skills as well as skills and knowledge in their specialty, their subject or discipline if they are not to retard rather than facilitate student growth (31).

Obviously environmental education should employ the most effective teaching-learning models available. Aspy and Roebuck's studies suggest that humanistic models should be adopted. They summarize the teaching-learning model derived from their studies as follows:

FIGURE IV

THE PHASES OF TEACHING AND HELPING AS RELATED TO THE PHASES OF LEARNING (32)


Teacher Helping
Attending
Responding
Personalizing
Initiating
Teacher Teaching
Content Development
Diagnosis
Goal Setting
Teaching Delivery
Student Learning
Exploration
Understanding
Action

Here the teacher is aware of the student's frame of reference and communicates this to the student. The teacher is acceptant and responsive and promotes the student's exploration. This can result in a spiraling learning process in which each action carried out or goal achieved provides new experience which provides opportunity for a new round of exploration, understanding and action. This approach can lead to education of citizens of the environment who are caring because they are cared for, and who understand the facts of the environmental macroproblem because they have learned the value of exploration and understanding and have learned how to learn.

The final argument for humanistic education in environmental education, and perhaps the most basic one, is that it addresses the need for caring, empathic, and humane people that emerges from the environmental macroproblem. India's great city of Calcutta provides a powerful symbol of this need, for affluence there coexists with the most abject poverty. Poor people live in hovels if they have any shelter at all, suffer from acute malnutrition, and drink fetid water, while well-to-do people nearby live in expensive homes and pour better quality water onto their lawns than their poor neighbors can get to drink. If there is any hope of redressing such inequity it must lie in people who "love their neighbors" and act on their behalf. This is a large order, and human history testifies to the difficulty of its attainment, but the effort must be made.

Humanistic education values individual integrity and uniqueness and thereby sets up the conditions in which a person can come to know and accept himself or herself. One values oneself, experiences self-love. Such love, argue philosophers and psychologists, is necessary for love of others. Fromm explains it as follows:

> The idea expressed in the Biblical "Love thy neighbor as thyself!" implies that respect for one's own integrity and uniqueness, love for and understanding of one's own self, cannot be separated from respect and love and understanding for another individual. The love for my own self is inseparably connected with the love for any other being (30).

Thus it would seem that if a goal of education is to redress inequity such as that described in the "have/have-not gap," then learning to love oneself in the sense described by Fromm is essential. And if an approach to education incorporates development of such self-love as a central objective, then that approach is necessary to achievement of the goal of equity. Such, then, is the argument for humanistic education as a necessary ingredient of education's response to the macroproblem.

In summary, then, the following arguments for a humanistic approach to environmental education have been offered.

--It allows engagement of the whole person in the learning process, and feelings necessary to effective environmental decision-making can emerge.

--It facilitates student examination of complex wholes, which is essential to understanding of environmental problems and their solution.

--It creates a learning environment in which the relevance of facts to the self can be appreciated. Thus a student learns that the subject matter studied is not just abstraction but relates directly to his or her personal existence. "We have met the enemy, and he is us," as the cartoon character Pogo expressed this realization.

--It creates a supportive learning environment where sometimes painful and unsettling exploration can occur.

--Fromm's conditions for change require a significant degree of self-perception, and humanistic educational processes provide opportunities for self-study.

--Environmental education should utilize the most effective teaching-learning models available, and evidence is mounting that humanistic models are among the most effective.

--Education for caring, sharing, and helping is necessary to address the macroproblem, and humanistic education, with its emphasis on development of healthy self-love, can help to nurture these essential qualities of the human spirit.

All that has been done here is to provide a definition and rationale for inclusion of humanistic education in the arsenal of environmental education resources. The "how" of the matter remains to be treated and will be reviewed in a later chapter. The particular vision of the world macroproblem and possible solutions thereto which was described earlier seems to require an educational response of the sort possible through humanistic processes. The sensitive teacher-educator Elizabeth Drews has described students who might be the product of the type of education envisioned here, and she describes the goal of such education.

> Although their elders may not like the definitions, and although they are often unsure what are the best values or directions to choose, they want life, above all, to be worth living. Some are beginning to understand that life must have meaning at its center, that each individual must consciously search for this in his or her own distinctive way--the theme of Herman Hesse's Siddartha. The most mature have come to recognize a personal responsibility both for their own lives and for those of others; and the wisest know that their ideas of a future and of an emerging world will give this self and world their form. They realize, moreover, that such images can be fashioned only out of self-awareness and knowledge about human potentialities. Thus all Creative Intellectuals, from the young student to the greatest of the philosophers, have chosen as the ideal direction of growth that route which enables them to discover who and what they are, to grasp more completely the meaning of others, and to sense more clearly the nature and purpose of life itself (34).

Footnotes

Chapter V

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CHAPTER VI

EXPERIENTIAL LEARNING IN ENVIRONMENTAL EDUCATION

Mark glanced nervously down the steep slope below him. He was thankful for the rope tied to his waist. While his footing was solid he was afraid the ledge he had cut out of the gravel bank might break out and down he would go.

The looseness and steepness of the gravel was what had brought him up here in the first place. His YCC crew had the job of terracing the steep gravel banks below logging roads in the Olympic National Forest. They were to dig out flat ledges twelve to eighteen inches wide, and to then plant groundcover on the ledges. If these seeds germinated, by next summer a net of roots would be holding the soil together, stabilizing the hillside.

As they drove up to the work site, Barb had stopped the van and pointed upward toward the next switchback on the road.

"See that? Rainwater has cut gullies down that gravel bank, and every good soaking will enlarge these gullies. And they get good soakings with over two hundred inches of rain falling in here each year. Eventually this road will be undercut and may slide down the hill. That's a good illustration of erosion."

"How can they stop it?" asked Terry.

"Well, they'll have to fill the gullies with logs and rocks and

then put in more gravel."

"Maybe they should put in a culvert like we did on our trail by the lake."

"They could do that, but there may not be enough runoff here to merit it. Besides, they'd have to dig out the whole road to do that, and that would be expensive."

Mark hacked away at the slope with his pulaski. The slope was steeper yet here, and he wondered, in view of what he'd seen earlier, why the Forest Service had allowed a road to be built across such a steep hillside. The gravel bank stretched a long way down the hillside below the road, taking up a lot of land.

"Take a break for a minute!" Barb shouted down to them.

"Can you see across the valley there where last year's crews did what you're doing now? The seeds they planted over there took root real well, and that's a pretty stable slope now. It hasn't eroded a bit since they cut those terraces."

The crew stood and gazed across the valley, glad for a rest. Down the valley Mark could see Wynooche Lake. Swimming was sure going to feel good tonight.

* * * * * * * * * * * * * * * * * * * *

Bob had come to feel as though these bald eagles were his own. Every year in early spring the pair had returned to their huge nest high up in the ancient cedar out past the end of Lincoln Lane. He could almost predict when they would arrive, and he'd spend hours every week during the spring watching the activity around the nest.

A lot of other people seemed interested in the birds during the *past couple of years. He'd noticed planes flying by rather closely, as if to look into the nest. And a lot of people were walking out to take a look. He thought it fine that others wanted to watch the great birds, just as he did, but he didn't like the planes. Every time they made a pass the great birds would fly up, and he thought their nesting was being seriously disturbed.*

Bob decided to find out what he could do about the planes. He asked his folks, but they weren't very helpful. They didn't think there was much he could do, and questioned the importance of having the eagles around anyway.

Slightly discouraged but still determined, Bob approached his biology teacher about his problem. Mr. Fletcher questioned him on it, and asked if Bob would be willing to take the class to see the nest. Perhaps other members of the class would be interested in Bob's problem.

So, on the following Monday, twenty-two high school freshmen made a fieldtrip in a light May rain. Bob took his binoculars and spotting scope. No planes flew by while they were there, but he explained the problem to his classmates. Several were interested and sat down with Bob and Mr. Fletcher upon return to school.

"Maybe the first thing to do is find out who owns the land," suggested Leslie.

"Mr. Graves owns it," said Bob. "He's got seventy-five acres out there."

"Have you talked about it with him?"

"Yeah, but he says he hasn't got any control of the air over his place."

"I wonder if that's true. Let's find out what we can about air-

space. I'll talk to my dad about it--he's a lawyer--and maybe the FAA people at the airport could help."

"Hey, I've got an idea," blurted Jill, almost falling out of her chair with excitement. "Let's spot the planes and write down their numbers. Then maybe we can track them down and go talk with the owners. If they know they're disturbing the birds and might drive them away, maybe they'd stop flying by."

"Good idea!" was Bob's response, "but we aren't sure what the effects are. I guess another job will be to find out as much as we can about eagles. I've read quite a bit about them. Can you help me on this, Mr. Fletcher?"

"I sure can, Bob. We can find out what science knows about eagle tolerance to disruption while nesting. You'll have to do some library work, and I'll help steer you along."

"Thanks."

Leslie had another idea. "Maybe when we get the information we can try to educate people around here about eagles so they won't disturb them. I don't know quite how we'll do it, but it's something to think about."

"It sure is," Bob agreed, speaking for the group who nodded and grunted their assent.

Talk went on for some time. Tasks were assigned to various members of the group, and they broke up resolved to meet again the next Monday to share what they had discovered. They were on their way toward attempting a solution to the problem.

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These two situations are examples of experiential learning that contributes to the environmental education of the people involved. In the first instance, young people are learning firsthand about erosion and erosion control. They are discovering effects of logging operations they may not have considered before. They are learning something about good and bad roadbuilding practices and measures that can be taken to at least partially rectify past mistakes. And they are learning that they can personally participate in improving their environment. They could study erosion as an abstraction in a textbook in a classroom, but they would not know the reality of it as they do in this situation. Learning through direct contact with a phenomenon provides a much more powerful and lasting educational experience than its less experiential alternatives.

In the second instance, the young people are learning many things, but foremost among them are problem-solving skills. They are trying to define a problem and work within their community to solve the problem. They will have to apply academic research skills to gather the information necessary to adequately define the problem. Communication skills will be stretched in their attempts to explain to the offending pilots and the public at large why the eagles should not be disturbed. Undoubtedly they will have to argue with some as to the value of eagles. Out of this may come conclusions about the value of nature for other than utilitarian purposes. The experience will raise many questions and engage the full capacities of the people involved. There will undoubtedly be transference of learning from this situation to others.

Experiential learning is much simpler to define than was humanistic education in the previous chapter. It is, simply enough, learning by doing. It is common knowledge that "experience is the best teacher," so the argument here that experience should be a central component of environmental education is not especially original. The same reasons that recommend experience as part of medical education, training for a trade, or in learning to teach apply here. The argument is made for experiential environmental education because, despite the logic of the idea and the proven effectiveness of experiential approaches to learning, the "inefficiency" of the approach heads to inadequate utilization of it.

While humanistic education may be seen as a philosophical stance as well as a methodology of teaching and learning, experiential education is primarily a methodology. The path toward humanistic education requires that the traveler ask many questions about human nature and the very basic purposes of education. Educators subscribing to various philosophies may embrace experiential approaches to learning, though it seems that humanism in education as earlier described, and learning by experience, are allies. Experiential education often removes the learner from the controllable environment of classrooms, textbooks, and teacher-directed learning and thus requires a relatively non-directive and trusting teacher. The teacher helps and teaches but serves especially to encourage and facilitate exploration and action-learning. It would seem therefore that the best experiential educators would also be humanistic in their orientation.

It is necessary to further describe and define "experiential" learning. Coleman has written with insight on the subject (1). He distinguishes between information assimilation and experiential learning and thereby defines the latter and its value. Information assimilation occurs largely in classrooms and involves the passing on of information or knowledge from an instructor to a learner. This transmission involves a symbolic medium. The teacher lectures on a general principle, for example, which the student commits to memory. The learner seeks to understand the principle, to learn its meaning, and to do so assimilates it into his or her existing body of knowledge. Once this is accomplished, the learner seeks to apply this knowledge. How does this general principle relate to the particular situation where it might be applied? Once the inference of a particular application from a general principle has been made, it can be applied. Learning has occurred which results in action.

The experiential learning process, on the other hand, moves in reverse sequence, according to Coleman. The learner begins rather than ends with an action. She or he acts and then observes the effect of that action. The observation is for the purpose of understanding the effects of the action in the particular instance. If such understanding is achieved, then the learner should be able to anticipate what would follow a similar action in a similar circumstance. The third step in the experiential process involves understanding the general principle under which the particular circumstance falls. What might be the connection between the action and its effects over a range of circumstances? The answer to this question will suggest the general principle.

> When the general principle is understood, the last step is its application through action in a new circumstance within the range of generalization. Here the distinction from the action of the first step is only that the circumstance in which the action takes place is different, and that the actor anticipates the effect of the action. At this point, the person can be said to have completed the

> learning so that the experience he has undergone is useful to him in future actions (2).

Having thus distinguished between experiential learning and information assimilation, Coleman goes on to compare the properties of the two approaches. He notes that information assimilation is the more efficient. It uses a symbolic medium to communicate the "crystallization of inferences from a broad range of experience (3)." This allows the experience of generations to be passed along, which would not be possible if all learning were experiential. Thus it obviously is an essential process in education. A problem with this process is that it depends on a symbolic medium, and if the learner's skills with the medium such as language are poor, then it will be difficult for that person to learn through the information assimilation process. Also, even when a learner has the skills necessary to work well within the medium, a weak link in the process seems to occur in the particularizing and acting steps. Students can understand general principles and do well on tests but have trouble applying what they have learned. The major hurdle seems to be ". . .the translation from a symbolic framework of understanding and thinking to a framework involving concrete sequences of action (4)."

Another quality of information assimilation noted by Coleman is its dependence on artificial or extrinsic motivation. The connection between the information being disseminated and the action to which it is related is not clear until late in the process. Students, especially at higher educational levels, are often heard to complain about the irrelevance of what they are studying. They do not perceive a relationship between the information they are trying to learn and their current actions. Often they have no opportunity to make a connection between knowledge and action within the context of the instructional program in which they are involved. Consequently external motivation must be provided through such devices as grades.

Experiential learning, on the other hand, has other strengths and weaknesses. It does not involve symbols as a fundamental ingredient of the process. Thus it does not have the capacity to transmit the accumulated knowledge of generations as efficiently as the information assimilation process. Its reliance on action and observation makes it a relatively slow and inefficient process. It is very time consuming. Motivation, however, is intrinsic in experiential learning, and the importance of this is great.

> Since action occurs at the beginning of the sequence rather than at the end, the subjective need for learning exists from the outset. If learners are to gain their ends through the action, they must learn whatever is necessary to guide action (5).

As noted in an earlier chapter, Combs has argued that the learner's perception of the personal meaning of information is essential to the learning of that information. Thus, if Combs is correct, the intrinsic nature of motivation in experiential learning is a powerful force.

Coleman observes also that what is learned through experiential learning appears to be less easily forgotten than in the other process. The reason for this, he hypothesizes, may be that associations with actions to which affect was attached result in more firm and lasting memorization than when purely abstract symbols are involved. It is more difficult for people to become emotionally involved with general principles than with concrete actions. Again, Combs has argued that "Affect is only an indication of the degree to which any concept, idea, or perception has personal relevance. The closer the event to the self, the greater the degree of emotion or affect (6)." All of this indicates that when experiential learning is possible, it has great potential.

Coleman's insights can be clarified by referring back for a moment to the vignettes that began this chapter. The young people working on erosion control can undoubtedly learn the concept "erosion" through the information assimilation process utilizing a textbook, slides, or other visual media. But if they live in urban Seattle where erosion is not visible, the concept will take its place along with many others that have no obvious direct significance in their lives. That is no problem, one might argue, because the problem has been solved where they live. This is not entirely so, for prices of commodities such as food and lumber upon which such city dwellers depend are affected by erosion. And the quality of the water they drink, which comes from the Cedar River watershed, depends also on effective control of erosion. So when they are asked to vote on an issue of public policy, such as forest or water management that involves erosion, if they cannot apply what they have learned about erosion to the problem at issue, then their education has been inadequate.

Obviously experience is no guarantee of later application of learning, but in the situation described, the young people ask what they are doing and why they are doing it. They are curious as to why they should spend their energy on this particular work, and the answer can be clearly and even dramatically given. They associate "erosion" with a particular environment and group of people. They know that slope is a factor because they have climbed the slopes. They know the extent of its damage and its economic cost because they can see it. And they know how the problem can be solved because they have helped in solution of it in this particular instance. Further, through a combination of information assimilation and experience they can learn how the problem might be avoided altogether. They learn that if certain knowledge is applied before action is taken, expensive remedial work such as they are engaged in can be avoided.

Clearly the two types of learning described by Coleman are complementary. Each has its limitations. Once a person has grasped the meaning of erosion through experience, he or she might be interested in learning about soil loss as a worldwide problem of great importance. Knowing that erosion is avoidable and correctable, the student may ask why this problem has grown to such proportions, and one question will lead to another. A process of inquiry has begun, initiated through experiential learning, but carried to fruition through study of the historical record and contemporary situation as described in the symbolic media of language and statistics. The teacher who mixes firsthand experience and classroom learning in this manner will be better able to reduce the need for extrinsic rewards such as grades and to increase the likelihood of understanding and retention than if one approach is used to the exclusion of the other.

One of the objectives of environmental education is action. The Belgrade Conference stated that one of the objectives is:

> Participation: to help individuals develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve those problems (7).

It is of no use to have an awareness of problems and a knowledge of concepts unless they affect behavior. Thus it is essential that knowledge be translated from the "symbolic framework of understanding and thinking," as Coleman described a key phase of the information assimilation process, to a framework that involves action (8). Learning in environmental education is simply not learning for learning's sake, but is purposeful. It aims at reform in that it seeks to change behavior of individuals and groups that has resulted in outcomes currently identified as problematical. Thus any educational methodology that increases the chances that learning will result in action should be adopted by environmental educators. Experiential methods seem to have much potential in this regard.

If a person is to act, he or she must know how to act and what to do. Thus environmental education must teach skills necessary for action, such as organization and problem-solving. A good way to learn such skills is to practice them. The situation described earlier with Bob and his eagles provides an example. Bob asked what he should do, and had his question been answered directly, his opportunities to learn would have been significantly less than they were when the question was turned back on him. Forced to think through the possible avenues available, and then to try them out, Bob can learn much about organizing himself and his group to confront a complex issue, and much about ways to do the work necessary to solve the problem at hand. The specific facts and concepts that he learns from the experience are less significant than the process that he learns and the confidence that he can gain in carrying out this process.

Specific skills that must be learned in environmental education are described by Bennett as follows:

1. Discovery/Inquiry related skills
    a. Finding out what to investigate.
    b. Gathering information on community environmental topics.
    c. Compiling, recording, and reporting collected information.
2. Evaluation/Problem Identification related skills
    a. Formulating evaluative questions to use in judging the environment.
    b. Finding answers to evaluative questions and comparing existing conditions to standards of quality.
3. Problem-Solving related skills
    a. Selecting a problem to resolve.
    b. Inquiring to become informed about the problem.
    c. Determining alternative solutions to the problem.
    d. Making a decision (choosing) on the best solution after considering the consequences of each alternative.
    e. Developing a plan of action to help resolve the problem.
    f. Implementing the plan of action.
    g. Evaluating the process and result (9).

Information about how to gather data can be given out by the instructor. But only the actual gathering of data, the processing of it through the mind of the learner, will lead to the practical and applicable knowledge necessary for action. This is perhaps obvious, yet many educators rely on the didactic mode of teaching to the virtual exclusion of other approaches, and when one of the purposes of the curriculum is action to solve problems, more than a purely intellectual understanding of process is essential. Thus the idea of decision-making or of developing a plan of action, even an outline of the steps necessary for such actions, are only half of the story. The connection between the idea and the reality must be clear. Chickering notes this:

> One of the principal ways learning improves is by strenghtening the links between ideas and the realities they refer to. Learning depends on two things: the ability to symbolize abstractly the events and objects of one's experience, and firsthand encounters with events and objects that give meaning to the inexact and abstract symbolic representations. When ideas are translated into

> specific acts, when theories concerning practice are realized through concrete behaviors, when abstract relationships are turned into tangible, visible products, then a strong and integrated system results that can be carried forward through time (10).

The skills that Bennett describes can be such a "strong and integrated system," if they are experienced.

Chickering makes another point of importance here when he notes that ". . .active engagement with social issues and human problems provided by many experiential learning opportunities also encourages what Robert W. White calls 'the development of humanitarian concern' and what Alfred Adler earlier called 'the development of social interest' (11)." As noted in the previous chapter, such concern is an essential quality of the person educated to environmental awareness. If the great problems comprising the macroproblem are to be addressed, people must be able to reach out to their fellows, to love in the sense Fromm describes, and to thereby confront the dilemmas posed by a world condition of poverty and excess. Chickering writes of ". . .the capacity to invest oneself in concerns beyond one's immediate self-interest and personal gain, the capacity to identify oneself with the welfare of others (12)." And Fromm notes that his "New Man" will have "Making the full growth of oneself and of one's fellow beings the supreme goal of living" as a central purpose (13). All of this is to reiterate the point of the centrality of "humanitarian concern" as a goal of environmental education. Chickering argues that experience encourages this concern.

No "hard" data is offered by Chickering in support of this contention, but intuition and personal experience, ironically enough, support his point. The experience of another person always more powerfully affects someone present than when transmitted through a medium like the written or spoken word. There are exceptions to this general rule, as in the case of the powerful poem or novel, but it is usually true. If Joe is suffering great pain as a consequence of injury and Mary sees him and holds his hand, Mary's emotions are much more powerfully engaged than if Peter tells Mary later about Joe's trial. This is perhaps obvious. In the same way, John will understand Carlos' frustration, pain, and purposeless much better by directly experiencing the poverty of Carlos' environment than by reading about the "culture of poverty." This latter is a generalization, an abstraction, and there is no life in it. Conscience and concern stir as the statistics of poverty are processed through the mind, but when Carlos is encountered in person, his stomach distended, his eyes dull, his demeanor dejected, one's whole person is gripped by emotion, the heart is engaged as well as the mind, and there is greater chance of empathy than in the more abstract encounter. There is no assurance that the experience will lead to action, but the likelihood seems greater in such a powerful and emotional encounter than in the other context. This being so, the environmental educator must move beyond books, films, and lectures and facilitate direct experience of the problems being studied.

Writers on environmental education agree also that it should address real problems, that it should be problem-oriented and involve study of local, regional, national, and global problems. A local problem is especially useful because it allows "hands-on" study. Once students learn the "how" of problem analysis on the local scale, they can then transfer their insight to larger and more remote problems which lie beyond the possibility of direct experience. Thus can experiential learning enhance necessary information assimilation. Also, problem-oriented study is a means to achieve the interdisciplinary quality that is necessary for effective environmental education. Environmental problems cannot be understood from a single disciplinary perspective; they are too complex and involve the whole fabric of the biosphere and society. If, then, experiential learning improves and facilitates problem-oriented study, which in turn assists in attainment of a necessary interdisciplinary mode of inquiry, then its value to environmental education is significant.

A related argument for experiential learning in environmental education is that it facilitates "holistic" encounter and learning. Environmental educators have been arguing for years that a goal of theirs is "perception of wholes" and that their educational process is "holistic." Noel McInnis has summarized these arguments as well as anyone. In relation to the goal, he writes:

> Our present educational methods, to repeat, foster the skill of thinking the planet's life process to pieces. Our studies of the planet are almost always partial and fragmented ones. We learn about the geographical part, or the biological part, or the social part, etc., but never are we enabled to develop a sense of the planet as a whole. Never are we presented with a perception of the planet as the total system that it is, so that we can perceive its parts in context. While the human mind may be unable to concentrate on the entire set of planetary systems at once; it can certainly develop a planetary perspective and world-view which enables it to concentrate on particular sub-systems in contemplation of the whole (14).

Thus identifying the goal in terms of thought, McInnis goes on to comment on the process by which such perspective can be achieved.

> If humankind is going to succeed at perceiving the wholeness of its global habitat and in developing collective and individual behaviors which are compatible with the preservation of that wholeness--if we are ultimately going to think the world together rather than think it to pieces--then we must develop a fundamentally different

> strategy of environment education. . .. We need to environmentalize education, to make education environmental in essence, rather than merely in content. Since environment is inclusive of all existing subject matters and disciplines, we need to apply all existing subject matters and disciplines to environmental functions and concerns. And since environments are inclusive of all their members, we need to pursue our studies in interaction with our environments rather than in detachment from them (15).

Clearly this may be taken as an argument for experiential learning. McInnis summarizes his argument with the contention that "Education will never be truly environmental as long as we continue to prepare young people for participation in the planet's life processes by withdrawing them from those processes for the better part of each day (16)."

An example might best substantiate this point. A problem to be examined is development of the Skagit River in the State of Washington. Various interests are fighting over this resource. Some want to develop it to produce electrical energy. Others want to control it for agricultural purposes. Still others want to develop it by building recreation homes on it, and another group wants it protected relatively unchanged so that runs of salmon and steelhead will continue undiminished. Yet another group wants the river system protected as a scenic resource. All of these groups are in conflict. The teacher hopes that students will be able to define and understand the problem as a whole and study elements of it with their context clearly in mind. If such can be achieved, students will learn much about this resource management problem in particular, and similar resource management problems in general. Indeed, the student will learn a valuable lesson about problem-solving in general.

Using a combination of information assimilation and experiential learning the students are encouraged to encounter the whole problem.

Armed with knowledge from background reading, they go into the field to examine the site of the conflict. They can appreciate all of the values that are conflicting. They observe the power of the water, its suitability for power generation. They listen to the arguments about the need for power and the "clean" quality of electricity in hydroelectric systems. They observe the beauty of the free-flowing river, perhaps raft down it, and thus come to understand the arguments of preservationists. A hatchery provides a chance to observe salmon and steelhead, and they learn about ecological interdependencies involving salmon and bald eagles. They watch eagles feed on dead salmon. The Skagit Indians are dependent on salmon, and their way of life is threatened by destruction of the salmon runs. The students talk to them and come to understand their arguments. In short, they experience the values that are in conflict and relate these experiences to the arguments which they hear and read. Further, they experience the interdependencies. They come to understand that you do not have eagles if you do not have salmon. Salmon depend on spawning beds of certain quality and if these beds are destroyed by too many dams or other developments, then you have no salmon. The students, having experienced the various values come to appreciate them and are enabled to come to their own conclusions about what the river should be used for. Moreover, they certainly will not all agree. This in turn provides opportunity for argumentation and exposition. And later, when they study American history and learn about the interdependencies of Indians and bison on the Great Plains in the 19th century, and learn the course of events there, the experience of the Skagit River study might be transferred to this new context and thereby generate questions about events, contexts, and values which the textbook authors do not treat adequately.

All of this is, of course, "holistic" learning. The process involves the whole learner. As students view the beauty of the river, the fish, or the eagle, they are emotionally involved, while their minds weigh the conflicting values. As they talk to the Skagit Indians and hear of their vulnerability and their fears for their culture, their hearts go out to them, even as they think about the need for electricity for a growing Seattle. They can try to be detached and objective, and aware of bias, can control its influence on their thinking; but when real people and real beauty are encountered, engagement of the senses, the mind, heart and body is essential to understanding, and they are engaged. When trying to sort all of these stimuli and the information garnered, the student works on the whole. He or she is faced with a task analogous to building a jigsaw puzzle. How do all the parts fit? What is missing and where might it be? And once the puzzle is together, a new scene emerges, a new understanding that was not possible when all of the parts were being separately examined.

Thus does the use of experiential learning contribute to achievement of holistic environmental education. Combined with effective models of information assimilation, it involves the learner in the subject, immerses him or her to the degree that it is hard to avoid learning. This is so because new information and perceptions are virtually forced onto the learners by the situation they find themselves in. The process of adjustment to this new material is learning, and each time the adjustment is made the person changes and has added an increment to his or her knowledge. Being present in the situation where the problem exists makes it difficult to avoid the new material and the adjustment. Such avoidance is not impossible but seems less likely than in the more abstract academic situation of pure books and classrooms.

This point raises another argument for experiential environmental education. Erich Fromm, as noted earlier, argues that people must learn to live in the "being" mode rather than the "having" mode. The former, he argues, will be more adaptive to the modern environmental situation and reduce the problems that arise from highly consumptive and materialistic lifestyles. Perhaps experiential learning can help people to understand the nature of the "being mode" that Fromm describes. It is a complicated idea that Fromm presents, but the relationship of experiential education to "being" may be described in relation to a single quality of the character structure of the "being mode." One quality of such a person is that one is "fully present where on is (17)." One is tempted to ask whether this is not always true regardless of mode, and Fromm would argue that it is not. People often live in anticipation of the future, or in the past, and miss the reality of the present. The possibilities have been well described by Berne in the familiar American situation of driving to work in the morning.

> The decisive question is: "Where is the mind when the body is here?" and there are three common cases.
>
> 1. The man whose chief preoccupation is being on time is the one who is furthest out. With his body at the wheel of his car, his mind is at the door of his office, and he is oblivious to his immediate surroundings except insofar as they are obstacles to the moment when his soma will catch up with his psyche. . . .While he is driving, he is almost completely lacking in autonomy. . ..
>
> 2. The Sulk, on the other hand, is not so much concerned with arriving on time as in collecting excuses for being late. . . .He, too, is oblivious to his surroundings except as they subscribe to his game, so that he is only half alive. His body is in his car, but his mind is out searching for blemishes and injustices.

> 3. Less common is the "natural drive," the man to whom driving a car is a congenial science and art. . . . He, too, is oblivious of his surroundings except as they offer scope for the craftsmanship which is its own reward, but he is very much aware of himself and the machine which he controls so well, and to that extent he is alive. . . .
>
> 4. The fourth case is the person who is aware, and who will not hurry because he is living in the present moment with the environment which is here: the sky and the trees as well as the feeling of motion. To hurry is to neglect that environment and to be conscious only of something that is still out of sight down the road, or of mere obstacles, or solely of oneself. . . .
>
> The aware person is alive because he knows how he feels, where he is and when it is. He knows that after he dies the trees will still be there, but he will not be there to look at them again, so he wants to see them now with as much poignancy as possible (18).

Berne clearly describes a condition familiar to many people. It is a condition of being absent from the present and therefore unaware of the reality of the situation one is experiencing. Undoubtedly in some cases it constitutes an escape from an unpleasant situation, an avoidance. Fromm argues that people must learn to be where they are for two reasons: they must become aware of the conditions they are in, as discussed earlier; they will live more fully if their awareness and spontaneity and intimacy are greater.

How can experiential learning contribute to achievement of the "being mode?" It can give practice in awareness and observation, and by enriching a person's experience it can open him or her up to the possibilities of the present. Joe Nold, a former president of Outward Bound Incorporated, an educational program which uses outdoor experiential learning as a primary tool, raised a clarifying question in a recent speech. He asked why it was that students who fail at the simplest tasks in school can get into a raft and pilot it down the Colorado River, successfully carrying out the complex calculations necessary to safely navigate the river. There are several explanations, but one of them is that the tasks at hand have the students' undivided attention. Motivation to carry out the tasks is intrinsic, for not to do so would mean a dunking in the river and possibly more serious consequences. So the student is fully present in the raft, aware of the demands of the situation and fully responsive to them. In the same way, a student engaged in interviewing a Skagit Indian or a power company spokesman can be motivated by the situation to a high level of awareness associated with "being." In each case the student learns the demands and rewards of "being." Success in running a difficult river, climbing a steep rock wall, or conducting a successful interview reinforces the behavior associated with the success, in this case concentration and awareness of the demands of the moment, and a step is taken toward "being." This subject demands much more attention than can be given it here, but clearly experiential learning, by its very nature, can contribute to learning about being, to achievement of the conditions of awareness Fromm argues are necessary for change to an adaptive character structure, and also to understanding of that character structure itself.

The final argument for experiential learning in environmental education is one that holds equally for all education. An experiential learning situation presents a challenge. The nature of such learning involves action and learning motivation is intrinsic, as noted earlier. The purpose of learning a skill or achieving an understanding is clearer here than in the information assimilation situation. So the student seems more likely to accept the challenge, study the consequences of the action, and learn successfully. In short, experiential learning, when properly managed, can lead to success, which enhances confidence and improves self-concept, which in turn enables and encourages the learner to accept more challenges, and a spiral of growth is begun. Outward Bound programs are organized on this principle. People are challenged to confront physical and emotional demands and they are taught skills and given support needed to successfully meet them. In some cases they achieve difficult feats they did not think themselves capable of before their Outward Bound experience. They leave the experience with new and mostly positive information about themselves that will be helpful in meeting future challenges.

The motivation factors used by Outward Bound are present in all experiential learning, and thus students engaged in environmental education benefit in the same way when they pursue experiential learning processes. They discover that they can successfully gather information and analyze and synthesize it. They lose a self-consciousness about learning which blocks it in more traditional processes. They may find, after a day in the field, that they have learned despite their previous record of failure in academic pursuits and their feelings of inadequacy. Increased confidence can be the result.

One might respond that this last argument claims too much for experiential learning. Where is the data to substantiate such claims? There is not such data. The claims are theoretical. Efforts to assess experiential learning are in early stages. Still, the testimony of people who have engaged in experiential learning and who use it to complement other learning strategies indicates the power of the process and its contributions to self-confidence.

At this point, then, a summary of the arguments presented for adopting experiential learning processes in environmental education is in order.

--It complements learning that occurs through the information assimilation process by helping the learner to understand the relationship of particular knowledge to the self and to personal experience.

--It addresses the central environmental education goal of participation by teaching skills through practice of them. People learn what to do, how to do it, and that they can do it.

--It encourages humanitarian concern.

--It facilitates problem-oriented study, which in turn assists in attainment of the interdisciplinary mode of inquiry necessary to understand environmental problems and their possible solution.

--It assists in achieving holistic learning by involving the whole person in the learning situation. Also, learners encounter the fact of interdependence and the necessity to think of wholes, of systems, despite the difficulties of doing so.

--The concept "being" necessary to achievement of the conditions described by Fromm, and involving awareness which is a major goal of environmental education generally, can be addressed through experiential learning.

--When properly managed, it can lead to success that improves self-confidence and may lead to more effective learning in other contexts.

There is certainly nothing revolutionary about suggesting the "experience is the best teacher" in environmental education. This cliche is also common sense. Yet there is resistance to using experience as a teacher in public education. It is "inefficient" and presents management problems. Still, for the particular set of goals that environmental education seeks to attain, experiential learning seems necessary.

Footnotes

Chapter VI

1. James S. Coleman, "Differences Between Experiential and Classroom Learning," in Morris T. Keeton and Associates, Experiential Learning: Rationale, Characteristics, and Assessment (San Francisco: Jossey-Bass Publishers, 1977), pp. 49-61.

2. Ibid., p. 52.

3. Ibid., p. 54.

4. Ibid., p. 56.

5. Ibid., p. 58.

6. Arthur W. Combs, "Humanism, Education, and the Future," Educational Leadership, 35, 4 (January, 1978), p. 302.

7. United Nations Environment Programme, "The Belgrade Charter," Connect, 1, 1 (January, 1976), p. 2.

8. James S. Coleman, "Differences Between Experiential and Classroom Learning," p. 54.

9. Dean B. Bennett, and Wesley H. Willink, K-6 Environmental Education Teachers Guide (Yarmouth, Maine: Yarmouth School Department, 1975), p. I-21.

10. Arthur W. Chickering, Experience and Learning (New Rochelle, New York: Change Magazine Press, 1977), p. 64.

11. Ibid., pp. 62-63.

12. Ibid.

13. Erich Fromm, To Have or To Be (New York: Harper and Row, 1976), p. 171.

14. Noel McInnis, You Are An Environment (Evanston, Illinois: The Center for Curriculum Design, 1972), p. 12.

15. Ibid.

16. Ibid.

17. Erich Fromm, To Have or To Be, p. 171.

18. Eric Berne, Games People Play (New York: Grove Press, Inc., 1964), pp. 179-180.

CHAPTER VII

THE EHEE CONNECTION

Previous chapters have presented a rationale for humanizing environmental education and for using experiential approaches to it. The next step is to bring these elements together in what might be called Experiential Humanistic Environmental Education (EHEE), and to illustrate how this particular approach can assist educators in achieving environmental education goals. Clearly this EHEE approach is not *the* final answer to the prayers of those who hope to improve environmental quality through educationbut it can address certain specific goals of environmental education directly, and can assist in the achievement of others. It is also important to constantly remember that education is a system and the separation of one approach or methodology from the continuum of experience that is learning is artificial and arbitrary though useful to analysis. There is a broad spectrum of teaching-learning models, each with its place in the curriculum. The learning situation calls upon the resources most appropriate to achievement of that situation's particular goals. The previous chapters have been an attempt to explain why humanistic and experiential teaching-learning models are especially useful for environmental education. What follows is a continuation of that effort and a more specific description of the possible form of Experiential

Humanistic Environmental Education.

The "EHEE Connection" can be best illustrated by describing the goals of environmental education and illustrating where possible how experience and humanistic education help achieve those goals. A summary of the goals, drawn from the literature and from the particular definition of the world macroproblem described earlier, is as follows:

#1. Conceptual understanding of the natural environment, of the principles that govern behavior or organisms in their environments. The goal is cognitive knowledge and understanding of facts and concepts organized around such areas as organization, interaction, and limitation.

#2. Conceptual understanding of the human-made environment, of how it is organized and why, what its problems are, and how it is governed by natural constraints. This, too, is a cognitive goal.

#3. Understanding of the concept of system, and ability to think in terms of complex wholes.

#4. Recognition of person as nature, that the "nature of Man' is that of member of an ecological community, and that particular responsibilities derive from membership in this community. These responsibilities and associated constraints on behavior constitute an ecologic ethic.

#5. Perceptual awareness, an openness to the sensory qualities of environments as they are experienced. Such awareness is a necessary complement to knowledge of principles, for through observation and participation comes understanding.

#6. Values clarification and change. This involves recognition that human action reflects the values of individuals and groups, that to understand action one must understand the values underlying them, and that when action leads to problems, the underlying values must be examined and perhaps changed.

#7. Humanism. The central concern of humans is humanity, and valuing the dignity and integrity of humankind should be the result of studying values, attitudes and behavior in the past and present. The importance of the dignity and integrity of the individual should be recognized and incorporated into an ethic. Caring for humans is, of course, caring for an important part of the environment.

#8. Fostering creative problem-solving abilities and attitudes. People must respond to environmental issues and problems as individuals who are free to choose, open-minded, and creative in their thought. They must be able to think for themselves, rather than succumb to the power and persuasion of others.

#9. Develop information-gathering, organizational and decision-making skills and knowledge. People must have the ability to organize themselves in order to investigate a part of the natural or man-made environment, or an environmental issue or problem. Once they have gathered information they must develop alternative solutions to the problems, weigh the consequences of each, choose a course of action and implement it (1).

These goals are not mutually exclusive but grade into one another. They are the beacons which guide environmental education policy, planning and implementation, and are stated rather generally in order that they may encompass a broad range of more specific objectives. The next step in this study is to examine each goal for how humanistic education and experiential learning might contribute to achievement of it.

#'s 1 and 2. Conceptual Understanding of the Natural and Human-made Environments

As has been stated several times earlier, the humanistic view of learning is that it is a personal matter and involves personal discovery of meaning. Such discovery is necessary for information to affect behavior. Concepts are ideas or cognitive abstractions which categorize and classify disparate facts. They are an organization of particular instances into a summary generalization. As such they are difficult to experience serendipitously. Thus, if the concept "Living things are interdependent with one another and their environment" is to be learned, a means of facilitating discovery of personal meaning of the concept must be found.

In this instance, humanistic education points toward the importance of experience as a part of cognitive learning. When a person begins to eat lunch the question arises, "What are you eating?" The response that the youngster is eating a sandwich leads to an inquiry about what is in the sandwich, to where it came from, and so forth until it dawns on the person that the simple act of eating a sandwich or anything else is testimony to the reality of the concept "interdependence." Or, in a more advanced example, study of American history is focused on westward expansion and attention falls on the Plains Indian episode. The dependence of this human community on available resources is discussed, and analogies to the present are explored. The bison was the foundation of the Plains Indian economy, and softwood timber is central to the economy of the small northwest community in which the discussion is occurring. "But we don't eat the trees and make clothes out of them like the Sioux did the buffalo!" "No," replies the teacher, "but we do that with what we exchange for the trees, or rather for the time spent working on the trees." So goes the discussion. A lesson about available resources in the past and present, and their effect on human communities, has been learned. If real examples and analogies are not readily available, simulations can be used. Occasionally the classroom and group itself provides the experiential context so helpful to understanding. Herbert Thelen describes a perception of the learning environment that is helpful in perceiving these possibilities, as noted in the discussion of holism in chapter five. The classroom is a "micro-society," complete with many of the dynamics of the society at large (2). An enterprising teacher can take advantage of the opportunity to place conceptual material into the social context of ongoing classroom life, and thereby give it meaning. The point is simply that the recognition of the importance of personal relevance to learning requires that the perceptions of the learner be studied and respected, and the learning process be structured so that personal understanding of the concept can be achieved. This point seems obvious, yet educational literature clearly indicates that all too often the concept is introduced through a process of information assimilation and does not continue beyond that step.

#3. Holistic Thinking

The conventional approach to education in the modern environment is to break the world up into graspable pieces. There are "subjects" and "disciplines" of knowledge. Students progress along a path toward ever greater complexity and abstraction while at the same time becoming more and more specialized in their studies. Some people who have inquired as to why there are environmental problems have found a partial answer in this approach to learning about the environment. People make their decisions, be they relatively small and personal or large and of national significance, on consideration of only part of the information which they could and should consider. This insight has led to articulation of the goal of holism for environmental education.

Robert Theobald has referred to the desired style of thinking as systemic; "a person thinks sytemically when he perceives connections, interdependencies, and reciprocal relationships in the real world in which he lives (3)." Such thinking will enable avoidance of some, for example, though of course not all, of the side effects of the application of modern technologies. A dam might be built at Copper Creek on the Skagit River because the city of Seattle needs more electricity for periods of peak load. The systemic thinker inquires as to what other effects the dam might have on the river environment. How will it effect the salmon and steelhead runs? How will it effect the nearby North Cascades National Park? Will many people be displaced? Are there other ways of acquiring the needed electricity? Is it truly needed? Why is it needed? Are there alternatives to generating more electricity? What are they? Are they feasible? What would be the effects of such measures as conservation? The questions go on and on, and the process of asking them and considering the knowledge that answering them brings, increases the likelihood that a good decision, measured in terms of long-range as well as immediate benefits and ecological as well as economic costs and benefits, will be made.

How then can this type of thinking be learned? Definitive answers to this question are still to be found, but some ideas are available. First, the fundamental concept of interdependence must be incorporated into the curriculum, as has been noted. There are many contexts where this can be done. The obvious one is in the life sciences where the concept is the foundation of ecology. But it can also emerge from studies of social sciences where the connection between individuals and groups, between institutions and environmental factors is always present. Literature, art and music all provide opportunities to accress the concept. If it emerges constantly as a factor in all facets of life, people begin to perceive its importance. It will, as perceptual psychologists would argue, emerge from the ground and become a figure.

As awareness and perception of the presence of the phenomenon of interdependence increases, effort must be directed at encouraging discovery of its personal meaning for the learner. It must begin on a small and personal scale. The approach will, of course, vary with the age and capability of the learner. Young children can learn that when they are unruly everyone in the group is affected, as they are affected when someone else causes the trouble. They have a tendency, when very excited about a topic of discussion, to all talk at once. They can be told simply to quiet down, but if a reason why they should do so is given, one that relates to their personal need to be heard and to learn, then it is likely that an orderly process can return. If they speak separately and think about what the others are saying, the collective thought on the matter under discussion will be greater. They may not grasp the point on this occasion, and some may never do so, but if they are reminded continually of their personal interrelatedness with others in the group, the idea slowly acquires meaning.

One teacher conceived a clever approach to build on this foundation. Actually he was working on the concept that some resources upon which humankind depends are limited. He gathered a normal week's supply of working materials (paper, pencils, paint, etc.) into his classroom and told the class that this was all the material that they would have for the next five days. Further, all waste material would stay in the room, and no janitor would come in each night to clean up after them. They could decide how and at what rate they would use the materials. He allocated a part of the supply to each student. (How interesting it might have been had he left the initial allocation to the students.) They went to work, and by mid-week part of the group had run through its supply. How could it get more? Others conserved their supplies better, so an interesting interpersonal situation emerged between those who conserved and those who did not. At the same time, the debris and clutter of twenty-five youngsters accumulated in the classroom. Who would clean it up? Aside from the learnings achieved about resources, important insights about interdependence emerged, and in the necessary personal and experiential way. Students examined many concepts by means of this teacher's simple but ingenious learning strategy.

Another way to approach the learning of systemic thinking is by means of problem-oriented study. The problems can be real and local, or they can be simulated. Perhaps a new road is to be built to bypass the city of Burlington. Developments up the road have led to greatly increased traffic and there are bottlenecks in the city, so the decision is made to bypass the community in order to speed up traffic flow. The question is raised in a secondary social science (or science) class about the effects that this will have on the various human and biological communities involved. How can these effects be studied? The teacher and the class discuss the method of study to be used, thereby learning organizational skills and addressing another environmental education objective. They then organize for the study and set out to do it. One group talks to people who live on the current highway route and along the proposed one to determine their views. Another consults local businessmen to ascertain potential economic impacts. Yet another visits the site with resource people in agriculture, biology and geology to learn what they can about the potential impacts on natural systems. Various teams address parts of the problem, but then they come back together and combine their data and once again ask the questions with which they began. All steps of this problem-oriented learning process have involved systemic thinking: the design and organization of the study, that is, the formulation of questions to pursue in the field, the analysis and synthesis of the data at the completion of fieldwork, and the consideration of alternatives and the description of impacts.

The point here is that the learning process immersed the students in systemic thought. It may not have been identified as such, but it forced the students to think in a systemic fashion about a decision that directly affects their community. They may have heard their parents talking about the situation, or read about it in the newspaper and formed an opinion, but they did not understand the situation in the way they can for having participated directly in experiential study of it.

A common argument for experiential learning uses the illustration of the dissection of a frog in a high school biology laboratory. One can read in the textbook about the physiology of the frog, but it is a desirable step toward effective experiential learning to give the students a scalpel and allow them to examine the physiology directly. Combining textbook and laboratory, the students know more about the frog than they would from only one type of inquiry. But do they know what a frog is from having examined a dead specimen? They do not in any holistic sense. They make an additional step toward understanding when they encounter a live frog, the living and breathing animal. But they still have not learned about the frog in the holistic sense being argued for here until they have studied it in its natural habitat. Then the frog is in context, behaving as only frogs do, interacting with other organisms and occupying their place in the natural order of things. The simple point is that holistic learning requires a continuum of experience. The students who study frogs in all of the ways mentioned can acquire the most complete understanding of this organism and its place in nature.

Obviously there are limits to this, for students living in the state of Washington cannot study amphibians, people, or societies which live in South Africa. But habits of thought can be taught in Washington so that the student recognizes the limits of what he or she knows, and understands the importance of both holistic and reductionistic inquiry, of both synthesis and analysis. EHEE encourages appreciation of the range of inquiry necessary to truly achieve understanding.

Another element of holism that deserves mention here is a personal one. Each person is the center of the universe as he or she experiences it. Thus each person struggles for congruence between experience of the outside world and meaning in the inner self. E. F. Schumacher has clearly stated the importance of this reality.

> All subjects, no matter how specialized, are connected with a centre; they are like rays emanating from a sun. The centre is constituted by our most basic convictions, by those ideas which really have the power to move us. In other words, the centre consists of metaphysics and ethics, of ideas that--whether we like it or not--transcend the world of facts. Because they transcend the world of facts, they cannot be proved or disproved by ordinary scientific method. But that does not mean that they are purely "subjective" or "relative" or mere arbitrary conventions. They must be true to reality, although they transcend the world of facts--an apparent paradox to our positivistic thinkers. If they are not true to reality, the adherence to such a set of ideas must inevitably lead to disaster.
>
> Education can help us only if it produces "whole men." The truly educated man is not a man who knows a bit of everything, not even the man who knows all the details of all subjects (if such a thing were possible): the "whole man," in fact, may have little detailed knowledge and theories. . .but he will be truly in touch with the centre. He will not be in doubt about his basic convictions, about his view on the meaning and purpose of his life. He may not be able to explain these matters in words, but the conduct of his life will show a certain awareness of touch which stems from his inner clarity (4).

The "whole man" Schumacher writes of here is an ideal seldom if ever achieved, but he clearly describes the interplay between the center and the external reality. There is constant feedback in the growing person between the "centre" and the outside, with the center influencing perception, and perception in turn modifying the "centre." This insight is important to environmental education because the educators cannot know precisely their goal in each individual case. They cannot define the "whole man" they strive to create, but must be content to help them become their possible selves. Achievement of "wholeness" in the sense that Schumacher describes it is a process of self-creation, and all any educator can do is encourage and facilitate that creation.

The goal of holism, then, is addressed by EHEE in two ways. A particular method of thought is cultivated in which a person learns to complement linear with systemic thought and to be always alert to interdependency and relationship. The person seeks to know and to understand something *in its context*. Secondly, it recognizes that growth is a process of self-creation and that the "whole man" is more than his behavior but is also his center. It values this wholeness and seeks to nurture it, allowing it to emerge in the hope and faith that in this way lies progress toward creative solution of environmental problems. It is the way, as McInnis has put it, toward "making people possible (5)."

#4: Person as Nature and the Ecologic Ethic

The history of western civilization is one of progressive separation of humans from nature. In the first chapter of Genesis, God creates the world, then creates man in his image and authorizes him to dominate and be removed from the subhuman world. This scriptural attitude has, according to White and other historians, provided the basis for an exploitive and destructive technology that has resulted in the myriad ecological problems facing the modern world (6). People see themselves as separate from the rest of nature, as qualitatively different from it, and exercise their "technique" for their benefit without concern for the non-human parts of the ecological community. Edberg has described the situation as follows:

> Tragically, mankind's increased technical ability has
> coincided with an increased insensitivity to nature's

> interplay of balances. Together, they have begotten an arrogance that has led man to think himself lord over everything else in creation (7).

Many writers on ecological problems have argued that humans must overcome this pride and arrogance and replace it with humility and recognition of unity. Edberg notes that "No organism can exist unconnected with the environment, which enters into its structure. Every organism--worm and bird, tree and man--is subject to environmental laws (8)." Houston stated it another way.

> Man is no encapsulated bag of skin; man is organism-environment. Understanding this difference should bring people to the realization that society has reached the momentous point in human history where, to survive, it must reverse the ecological plunder (9).

Leopold has made the point as well as anyone.

> All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to cooperate (perhaps in order that there may be a place to compete for).
>
> The land ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively: the land. . . .
>
> In short, a land ethic changes the role of Homo sapies from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such (10).

So the task seems to be to reeducate people to the reality that they are "natural" and must live in harmony with other members of their "community." Leopold argued that what is needed is an ecologic ethic. Such an ethic exists throughout nature and is "a limitation on freedom of action in the struggle for existence (11)." Humans have believed themselves beyond the dictates of such an ethic. Their social ethic which, according to Leopold, is "a differentiation of social from antisocial conduct," has been formulated only in terms of the human community. These two ethics can and must be brought together to form what he called the "land ethic."

A goal of environmental education, then, must be such an ethic. It can be argued that such an ethic is the goal of environmental education. The problem here is how EHEE can contribute to development of such an ethic. First, it has been the insight of nature education and outdoor education that if people are to understand the very concept "nature" they have to experience it. Stories are told of youngsters raised in large urban areas who have no idea where milk or electrical energy or many other resources come from. They see milk come from cartons and electricity appear at the flick of a switch and think that these are purely creations of human beings. They do not even inquire as to source. These necessities are there when needed, and that is enough. Obviously contact with the non-human community is essential to understanding of that community. This does not mean that children must all go to summer camp or drive out of the city to school camp--which is certainly desirable where possible--but rather that available opportunities for contact with nature be availed of whenever possible. Teachers can utilize weedy waysides and vacant lots, small parks, community gardens, even dish gardens, aquaria and terraria. The objective is simply to allow people to experience the reality of the "community" in Leopold's sense. Once this has occurred, then it is fruitful to engage in discussion of human ecology, the relationships that exist between people and their community.

It seems desirable also, where possible, to immerse people in the natural environment, to put them in places where they can perceive directly how their actions affect the integrity of the community and how it in turn affects them. This might be done, for example, in gardening. The gardener is taking advantage of the sun's energy and soil nutrients to contribute to satisfaction of a basic human need. He invests the sun's energy in the garden patch by spading it up (utilizing the solar energy contained in his food, which of course came from another garden), or tilling it mechanically (burning solar energy in petroleum). He then fertilizes the soil using either animal waste or a chemical fertilizer, plants his seeds, and works for several months controlling competing plants, which he calls "weeds," then ultimately harvesting the crop that has survived the vagaries of weather and pests of various kinds. Finally food storage and preparation are necessary. At all stages of this process the gardener can study human ecology and can transfer concepts learned through the gardening experience to the larger context. It makes good sense to study agriculture on the large scale hand-in-hand with a gardening experience. The abstraction that is industrial agriculture can be contrasted, compared and understood in relation to the small garden. And the reality of organic unity can perhaps be grasped as the interdependencies are understood. Limits and constraints can be perceived. This is just one of many examples wherein experience of natural environments, coupled with abstract study of the larger world, can lead to important learning.

There has been a growth in recent years in the United States of outdoor programs. People in increasing numbers have engaged in outdoor recreation activities. Such activities can also provide opportunities to sense the necessary unity and oneness with all life. These activities can be engaged in for recreation and/or as part of educational programs. The educational potential of the experience lies in its context. The participant is removed for a moment from the hustle and bustle, the structured and scheduled world of everyday existence. He or she is removed also from the technological support systems that sustain life and mediate contact with the sometimes harsh realities of nature. In the woods, on the desert, mountain, or sea, people can return to a vulnerable position their ancestors struggled to get out of. They are not returning there to live, of course, but to visit and to gain inspiration. They must become concerned about the weather and the natural cycle of day and night. They work their muscles and test their physical strength and their wits in situations where their very survival may be at issue. Thus they may become aware of their vulnerability and mortality, and this is a lesson that is part of becoming aware of the large community of which humans are a part.

It is not being suggested here that people be taken out into risky situations where their very survival is clearly at stake. But when people are confronted by the powerful and inexorable workings of the natural world, they may be reminded that they do not have the complete control over their lives that they perhaps thought they did. This is the realization that sweeps over one as he or she stands on a lateral moraine and watches and hears the ice of a glacier grinding downward. Or perhaps he or she sits in a tent and listens to the wind roar through the trees and rain pound on the tent. Nothing explicit is necessarily learned from such experiences, but the possibility is there that the participant will learn something elemental that might lead to the humility that is essential to understanding of oneness and unity.

The understanding involved here is not purely cognitive. The words "oneness" and "wholeness" and "unity" do not evoke images in the mind. They are abstractions that have no substance. They must be "realized" or "felt" to be understood. Leopold did not arrive at his concept of "land ethic" along a purely cognitive path. He came to it via a lifelong involvement with the natural world, first as a sportsman and later as a scientist and husbandman. He learned as a child and young man to live in and appreciate the natural world, then sought to know it in the scientific sense, and finally came to care for it with both mind and heart. Ideally the environmental educator can help people travel along this same path, combining love and affection derived from contact with the mystery, wonder and beauty of nature, with knowledge acquired through systematic study.

Edberg thinks long and hard about this matter of the relationship and perception of humans to nature. Is it not presumptuous, he asks, that humans are able to see only instincts impelling the actions of other creatures, while their actions are directed by intellect. "Humbling oneself ever so little, one will find it hard to draw sharp lines between instinct and intelligence, intuition and insight (12)." There is certainly a great difference in thinking ability between a human and his or her fellow creatures. But, Edberg notes, it is a difference of degree, not of kind. This idea calls to mind a passage in a book by Farley Mowat. He and a companion are in a small boat in a bay in Newfoundland in which is trapped a large female fin whale. The local residents, spotting the stranded whale, shoot many rounds of ammunition into it and otherwise abuse the trapped animal, and an outraged Mowat tries to come to the whale's rescue. He is unsuccessful, but does his best, and is rewarded by an experience that is haunting and suggestive of the insight which Edberg has described.

> Then she sank forward and her head went under. The hump appeared, she blew and sounded and, a few seconds later, was passing directly under the dory. It seemed to take as long for the interminable sweep of her body to slip by as it does for a train to pass a railway crossing. But so smoothly and gently did she pass that we felt no motion except when the vast flukes went under us and the dory bobbed a little.
>
> It was then I heard the voice of the Fin Whale for the third time. It was a long, low, sonorous moan with unearthly overtones in a higher pitch. It was unbelievably weird and bore no affinity with any sound I have heard from any other living thing. It was a voice not of the world we know.
>
> When the whale had passed on, Onie sat as if paralyzed. Slowly he relaxed. He turned and looked at me with an anxious and questioning expression.
>
> "That whale. . .she spoke to we! I t'inks she spoke to we!"
>
> I nodded in agreement, for I will always believe she deliberately tried to span the chasm between our species--between our distant worlds. She failed, yet it was not total failure. So long as I live I shall hear the echoes of that haunting cry. And they will remind me that life itself--*not human life*--is the ultimate miracle upon this earth. I will hear those echoes even if the day should come when none of her nation is left alive in the desecrated seas, and the voices of the great whales have been silenced forever (13).

This may be dismissed as romanticism, or it may be regarded as the necessary humility described by Edberg. Certainly this is a dramatic and rare encounter, but its qualities can be achieved in more common experiences. An environmental education that emphasizes experience and places people in contact with natural communities will yield opportunities for profound and humbling encounters like that Mowat describes.

#5: Perceptual Awareness

> The love of beauty may express itself in a song, in a smile, or in silence; but most of us have no inclination to be silent. We have not the time to observe the birds, the passing clouds, because we are too busy with our pursuits and pleasures. When there is no beauty in our hearts, how can we help the children to

> be alert and sensitive? We try to be sensitive to beauty while avoiding the ugly; but avoidance of the ugly makes for insensitivity. If we would develop sensitivity in the young, we ourselves must be sensitive to beauty and to ugliness, and must take every opportunity to awaken in them the joy there is in seeing, not only the beauty that man has created, but also the beauty of nature (14).

Earlier in this paper reference was made to Berne's discussion of awareness in which he noted that many people engage in their daily round of activity without being aware of the world they are experiencing. They are so caught up in their internal world of anxieties and expectations that they fail to notice the beauty and ugliness around them. The effect of such limited awareness on the environment is obvious. People simply do not notice degradation and change unless it occurs in their neighborhood. Further, they cannot relate to the value of environmental qualities or elements that lie beyond their perception. There is little hope that people will be motivated to act on behalf of environmental quality until they perceive it. Thus an obvious task for environmental education is to educate for awareness, to open people up and increase their sensitivity to the world around them. This can be done consciously and experientially.

Rachel Carson has written of a "sense of wonder" that is present in children.

> A child's world is fresh and new and beautiful, full of wonder and excitement. It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood. If I had influence with the good fairy who is supposed to preside over the christening of all children I should ask that her gift to each child in the world be a sense of wonder so indestructible that it would last throughout life, as an unfailing antidote against the boredom and disenchantments of later years, the sterile preoccupation with things that are artificial, the alienation from the sources of our strength (15).

Since no such fairies are available, she counsels that parents, teachers and other adults try to share in the child's fascination with the mystery and excitement of the world. It is not necessary to know the names of the birds, flowers, or trees, but simply to nurture the child's curiosity and excitement. This can be accomplished by sharing experiences with the child in the outdoor environment, by sharing personal perception and appreciation.

> If you are a parent who feels he has little nature lore at his disposal there is still much you can do for your child. With him, wherever you are and whatever your resources, you can still look up at the sky--its dawn and twilight beauties, its stars by night. You can listen to the wind, whether it blows with majestic voice through a forest or sings a many-voiced chorus around the eaves of your house or the corners of your apartment building.
> . . . .Exploring nature with your child is largely a matter of becoming receptive to what lies all around you. It is learning again to use your eyes, ears, nostrils and finger tips, opening up the disused channels of sensory impression (16).

Carson clearly recognized the importance of cultivating awareness, that affect was a necessary part of learning, and that this could be nurtured by means of a process of keeping the child open to the world. Children will, as they mature, increasingly adopt the values of their elders. If their models are open to experience, try to be observant and sensitive to their world, so too will the child. The implications of this for environmental education are obvious.

Van Matre recognized the importance of perceptual awareness and, building on Carson's insight, developed an extensive methodology for nurturing perceptual awareness in outdoor settings. He called his approach "Acclimatization," and it has been widely adopted by environmental educators in many contexts. He simply drew together many activities from a variety of sources and focused them on a general goal of ecological understanding. Thus he has taken the blind walk idea which has been widely used and made it part of his process. It forces people to use their hearing and tactile senses, and opens up new potentials for experience. He borrows the "solo" idea from Outward Bound schools and uses it to provide people with the experience of solitude in an outdoor environment. Confined to a limited area without any companions for a period of days, a person cannot help but notice details of the place that would be missed if he or she just casually passed through it. This experience is a reminder that people usually observe only the surface of a place and this can lead to an increased desire for awareness and knowledge. There is no way that this insight can be gained except by experience. It is common knowledge that human perception is of necessity limited and selective, but the fact of this in the personal instance can only be appreciated through firsthand experience. Van Matre realizes this and makes it the foundation of his approach. By means of sensory experience he seeks to nurture awareness and wonder and "pave the way for the child to want to know," as Rachel Carson described such a process. It is not necessary here to detail the work of Van Matre but rather to endorse it and suggest that the reader consult his work for an extensive resource of sensory awareness activities suitable for environmental education (17).

Some of Van Matre's activities are useful with adult groups also, and many were, in fact, borrowed and adapted from sources that were originally developed for use with adults. Techniques developed for group work aimed at increasing interpersonal sensitivity are an example. In many instances, learning to relate better to other people is a process of increasing one's ability to realistically perceive those people. Thus one becomes more aware of body language, of effective listening techniques, and so forth. One also learns that his or her own internal state affects perception. The basic axiom of perceptual psychologists that how a person behaves will be a direct outgrowth of perceptions existing for him or her at any moment can be understood through interpersonal sensitivity exercises. This axiom helps to explain why people perceive the same external reality differently. These insights are important for environmental education, for people learn of their limitations while at the same time achieving a vision of potentials not evident to them before. They may actively seek to improve their perception and thereby their functioning, and may also become more aware and appreciative of environmental quality and intolerant of environmental degradation.

An important quality of the educator who seeks to address this environmental education goal is acceptance of the student's perceptions. One person cannot force another to be more aware and perceptive. Teachers can assist students in learning what is possible and in learning skills helpful to sharpening awareness, but they must not define this awareness. They must accept the students' perception and support it. Otherwise students will merely try to "psych out" what the teacher wants them to perceive and thus will not improve their skills. This is an obvious point, yet it is a great temptation to always be pushing for specific outcomes of learning experiences. In the case of improving sensory awareness and perception, such would be a great mistake.

To achieve the goal of improved awareness, then, environmental educators should provide educational environments and experiences that are rich and varied. Since they should not unequivocably set standards of good and bad, by exposing students to variety they provide them with an opportunity for choice. This matter is moving toward the next goal of valuing, but is important here because perception and awareness is essential to choice. Background experience of broad scope allows people to discriminate between contrasts and alternatives. Humanistic educators have developed hundreds of techniques for improving awareness of self and the external environment. All of these resources can be utilized through the process of experiential and humanistic environmental education.

#6: Value Clarification and Change

Values and valuing are important to environmental education in several ways. First, there is confusion in the minds of many people about what they should value. Traditional sources of values, such as family and church, are no longer serving as well as they once did to guide people in making difficult choices, setting goals and limits, and resolving ethical dilemmas. Consequently there is confusion in many people about what should guide their decisions, and many turn away from difficult choices, preferring to leave them to others. When those others are politicians, bureaucrats, or businessmen bent on increasing or maintaining their power, status, or control over people and natural resources, trouble for the environment results. This problem is not purely one of values, for people are also confused by a phethora of information, but even here confusion as to what one values increases one's inability to organize and decide what part of the information load one is to master and use. Harman points out the implications of this situation.

> . . .the only form of guiding microcecisions that is compatible with the western concept of democracy is through education leading to free choice of wholesome values expressed in open political process--these values in turn influencing motivations and thence behavior. But this process presupposes widespread agreement on some set of fundamental beliefs and values from which the behavior ultimately derives. Lacking this consensus, we find strong pressures toward control through the shaping of motivations and behavior (18).

When the controllers in such a situation promote particular values, as indeed they would and do, such values might not be in the best interest of people and their environment. The current argument over energy policy provides an example. If the people currently in power were to "shape motivation and behavior" in order to attain their goal of a high-technology and centralized electrical energy generation system, problems associated with inflexibility, cost, and environmental impacts might occur which could be avoided if alternative approaches to electrical energy generation were used. The point is simply that if people are going to choose, they must have the freedom to do so, and part of this freedom comes from the ability to examine and be confident in one's values. For this reason, values clarification must be a part of environmental education.

A related point is that people need to critically examine assumptions, premises and values that guide policy and decision-making related to environmental quality. As noted in the early chapters of this study, many students of environmental problems believe that operative values should be critically examined and in some cases changed. Some values may at an earlier time in cultural history have contributed to progress and betterment of the human condition but now contribute to problems and should therefore be changed. A partial list of such values might include:

--the idea that "growth is good" and "bigger is better" whether it be growth in population, tax base, size of firm, or acreage of farm.

--the technological imperative, that any technology that can be developed and applied, should be (19).

--competition: the way to success, which is the maximization of one's personal welfare, is to be the good competitor, to be good at a win-lose game.

--emphasis on technique and fascination with means to the degree of obscuring ends.

--efficiency and quantification: the higher the output, of goods or work, per unit of time, the better.

--separation: of person from person and person from nature, limiting responsibility for fellow humans removed in space and time, and allowing exploitation of the non-human parts of the environment (20).

A list of "new" values might also be drawn up, values which could be promoted as adaptive to current constraints and as offering solution to pressing problems. Tom Bender has written, "Our ability to develop a culture that can endure beyond our own lifetimes depends upon our coming to a new understanding of what is desirable for a harmonious and sustainable relationship with the systems that support our lives (21)." This may, as he believes, mean identifying and incorporating new values in the culture. Such values might include the following:

Permanence--actions should contribute to the quality of society, and therefore of the environment, in the long run.

Non-violence--actions should minimally disrupt the biosphere, should adhere to the ecological constraints which govern the interaction of all living organisms.

Stewardship--humans have a responsibility that goes along with the power derived from technical ability to maintain and improve the sustaining Earth.

Frugality--human needs should be satisfied, such as needs for physiological sustenance, safety, love, and growth, but wants should be minimized. Humans should live within the means of the environment to sustain them, accepting limits especially to *material* wants, for the finiteness of Earth sets such limits.

Cooperation--people should cooperate within the community, recognizing that the good of all within the community, including the self, is served when the welfare of the community is maintained.

Diversity--as in all ecological systems, disruption is minimized in human systems when there is diversity, so in matters technological as well as organizational and biological, diversity should be maximized.

Oneness--humans should value the unity of life and reject the premise that person-person and person-nature separatism limit responsibility.

Quality--value lies in well-lived years, not in the total years lived, in products well made and work well done, not in numbers of items produced or hours spent. In short, quality and quantity, and sometimes quality alone, may constitute good.

People--humans are individuals with needs and aspirations and a desire to grow, rather than personnel to be used for specific ends. Organization, technology, and work should aim for the betterment of people through meaningful work, not for maintenance of abstract calculations of welfare such as GNP and "standard of living."

This is by no means a complete list of "new" values but illustrates the point here. Environmental education can and must facilitate criticial examination of accepted norms of value and action, and must suggest new directions that people might take. It brings together knowledge of why change is necessary, knowledge based on facts and concepts acquired in pursuit of the goals described earlier in this chapter, with the realization that to act is to choose, and that alternative values may be and perhaps should be chosen.

Many educators may raise questions about the ethics of such a contention. They may view the role of education as primarily one of socialization and preparation of people for effective functioning in the society. It certainly serves this function. But another ethical question arises: if the society is flawed, is it right to raise young people to an uncritical acceptance of the less than optimal situation? This ethical dilemma is admitted here and the position taken that. at least in a democracy, a range of value choice is essential to effective social functioning, that all education is value-laden, and that it is the responsibility of the environmental educator to raise questions in a spirit of open and responsible inquiry about the nature of operative values. It is here, and in its treatment of awareness, that environmental education addresses the task defined by Fromm and described in earlier chapters.

Having established the need for values education, the next task here is to examine what humanistic education and experiential learning can contribute to attainment of environmental education's goal of improved skill in considering valuative alternatives and making valuative decisions. Values education itself qualifies for inclusion in educational processes classified as humanistic because it: (a) requires acceptance and teacher valuing of learner needs and purposes; (b) requires freedom as a basic element of the learning process; (c) requires a supportive environment where learners can examine sometimes frustrating and painful dilemmas and can learn to cope with uncertainty and ambiguity; (d) requires openness to and acceptance of diverse choices, a climate where no absolute standard of "right" or "wrong" is evident, and where respect for the individual and his or her right to choose is emphasized; and (e) requires teacher recognition and acceptance of the role that emotions play in making choices. It is possible to imagine values education that is not humanistic. Adults might limit the choices available to children, for example, by only telling them part of a story. Or a principle might be presented to which adherence is required. Indoctrination and inculcation are forms of values education which are not humanistic and are not acceptable for environmental education.

Four approaches to values education utilize experience and meet the humanistic criteria mentioned. These four are values clarification, moral development, analysis, and action learning. An entire book might be written describing how each of these approaches can contribute to environmental education. For this study, a brief summary of the approach, its humanistic and experiential qualities, and an example, will be presented.

Values Clarification Approach

This approach includes the three action phases of choosing, acting, and prizing. Its value theory:

> . . .is based on a conception of democracy that says persons can learn to make their own decisions. It is also based on the conception of humanity that says human beings hold the possibility of being thoughtful and wise, and that the most appropriate values will come when persons use their intelligence freely and reflectively to define their relationships with each other and with an ever-changing world. Furthermore, it is based on the idea that values are personal things if they exist at all, that they cannot be personal until they are freely accepted, and that they cannot be of much significance if they do not penetrate the living of the person who holds them (22).

Rath, Harmin, Simon and others have developed a values education process based on this theory which they have called values clarification. The process consists of posing a problem of valuing to the student in an environment which is open and free from threat; urging the student to identify his or her position on the problem, providing the opportunity to view a range of alternative value positions, and allowing affirmation and action upon the value position taken. The approach involves no normative judgment of right or wrong but gives the students insight into the values issues before them, into their personal position on the issues and gives practice in the process of perceiving and evaluating alternatives. Thus they gain skill in decision-making which is so essential to working on problems of all kinds.

Values clarification may take many forms, among them role-playing games, simulations, contrived or real value-laden situations, in-depth self-analysis exercises, sensitivity activities, out-of-class activities, or small group discussion (23). It is usually best used as part of an inquiry rather than as an isolated exercise. It was useful, for example, in a Youth Conservation Corps camp where the adolescent enrollees were upset and angry at their situation. At a campfire discussion of grievances, a staff member suggested that everyone share their hopes and aspirations for their YCC experience. All did so, and as the process unfolded, the angry and confused group began to focus on the possibilities in their situation. They clarified their goals, and came away from the process excited about the opportunities they had to explore themselves, other members of the group, and the forest environment in which they were living.

In another example, students examining energy issues and the conflict between advocates of increasing supply and reducing demand, brought the problem home to their immediate situation by means of an adaptation of the values clarification exercise "Baker's Dozen." They were asked to list thirteen electrical appliances which they use at home, then cross out three items they could do without and three items they could not do without. If energy demand figures on the items are available, they can be calculated for purposes of discussion. Questions about how people use electricity and where use might be curtailed are discussed. What would they choose to use if they had only one-half of the electricity to use that they do at present (24)? Such exercises increase the likelihood that students will perceive the relationship of the general problem under discussion, that of energy supply and demand and the tradeoffs involved in increasing and decreasing them, to themselves. Thus the condition of relatedness to self described earlier by Combs as necessary to effective learning is achieved.

A limitation of the values clarification approach is its dependence upon the immediate group of people involved in the exercise for a range of alternative value positions. This can be a problem in a relatively homogeneous group. If, for instance, all of the students in the above-mentioned energy example identify the same energy-intensive values, how will the less energy-intensive alternatives be introduced? It will be necessary to go beyond mere clarification of values already present, to sacrifice the relatively "value neutral" quality of this approach to values education, to the overt introduction of alternatives perhaps beyond the experience of the students involved. When this occurs, the leader will have moved beyond purely values clarification. This is no problem, for values clarification seems most useful when only a part of a larger learning strategy which includes several approaches to values issues.

A final point on values clarification is its contribution to the conditions described by Fromm which were discussed in earlier chapters. Values clarification can contribute significantly to one's self-knowledge. Using this approach, people ask themselves what they have chosen and why. They are forced to evaluate their choices and to weigh their commitment to them. If they find themselves uncertain as to what they should choose, then they may begin the process of identifying their "suffering" and of understanding its origin. They may also identify alternatives to their situation, part of the way to overcoming "ill-being," and thus discover changes they may make in norms and practices which will lead to a better situation. Thus all of the conditions for characterological change that Fromm identifies can be helped along. This is claiming a lot for values clarification, and obviously it alone cannot create the conditions, but it can contribute.

Moral Development Approach

A second approach to the problem of studying values in environmental education involves the study of morality in environmental decision-making. Recently cognitive psychologists have focused upon the problem of moral development utilizing a structural approach. Their work has allowed a concise description of moral reasoning, and has resulted in a typology of moral thought. Since all decisions which impact the environment involve moral thinking, a cognitive assessment of what constitutes right action in the situation, their work is valuable to environmental educators.

Lawrence Kohlberg has described the typology, which contains three distinct levels of moral thinking. Each of these levels ". . . may be considered distinct moral philosophies, distinct views of the socio-moral world (25)." The first level, called the "preconventional" by Kohlberg, is characterized by interpretation of good and bad ". . .in terms of their physical consequences (punishment, reward, exchange of favors) or in terms of the physical power of those who enunciate the rules and labels of good and bad (26). At the second, or "conventional," level, the goal is maintenance of the rules and expectations of the group. The goal is to maintain, support, and justify the individual's social order. This level can be described as conformist. And the third level, called "postconventional," is marked by emergence of self-determined moral principles. Right and wrong is determined by rational consideration of social utility or by appeal to self-chosen, comprehensive and consistent ethical principles. These are ". . .universal principles of justice, of the reciprocity and equality of human rights, and of respect for the dignity of human beings as individual persons (27)." These levels, according to Kohlberg, are developmentally sequential and movement is forward in the sequence.

How does this relate to environmental decision-making? Aldo Leopold, as noted earlier, has called for an ethic that limits human behavior according to prescriptions of both social and ecological good. With a concept of community that includes non-human as well as human elements, an ethic may emerge based on the idea that "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community (28)." It is wrong when its effect is other than this. In Kohlberg's terms, right action at the preconventional level is determined by what one perceives will satisfy one's own needs. Decisions in human relations are governed by reciprocity, and there seems little chance of concern about the biotic community entering decision-making at this level. Only if a person of higher authority upon whom the decision-maker is dependent "lays down the law" on matters of biotic importance does it seem likely that the decision-maker at this level will act correctly ecologically.

At the conventional level there is orientation toward group norms and maintenance of the established social order. One is good when one is dutiful and does not rock the boat. Here, then, it seems that one will only behave rightly on behalf of the biotic community if that is the behavior expected by one's group or determined by the authorities. Leopold was concerned that most people seemed to operate largely out of economic self-interest, ignoring the biotic except when good ecological behavior was in this economic interest. In a social order such as that of the contemporary United States where status is measured in large part in terms of one's possessions and income, people strive to maximize their economic benefits in order to be accepted and respected. They trample the biotic community on their path toward this fulfillment because it does not enter into their reasoning as regards maintenance of social position. In short, the group norms and social order do not prescribe good biotic behavior in the terms Leopold described, so concern for such does not enter the moral reasoning of people at the conventional level.

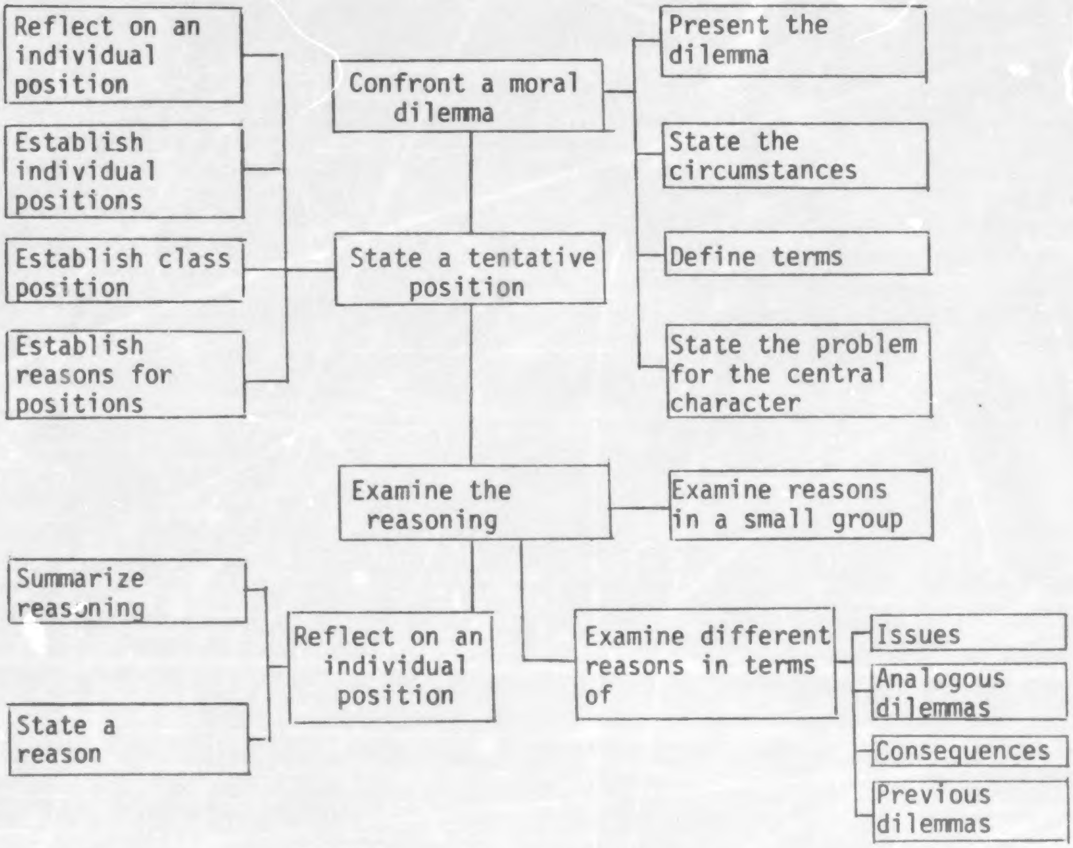
It is at the postconventional level that the type of moral reasoning occurs which might result in an operational "land ethic." Such an ethic can occur in the two lower levels of moral reasoning only if there are people in authority governing behavior according to the dictates of ecological dynamics and imposing their thinking upon those reasoning at the lower levels by means of laws, the setting of norms, and personal authority. Kohlberg notes that the highest stage of moral reasoning involves an "Orientation toward the decisions of conscience and toward self-chosen ethical principles appealing to logical comprehensiveness, universality and consistency (29)." At this level it seems possible that a person living in the late twentieth century can gather the host of facts about the biotic community and its problems into his mind and integrate this data into his concepts of justice and equality. If a person is to expand ethical principles from the human community to the total biotic community, autonomy of the person doing the moral reasoning will be essential. The decision-maker must be informed in order to make a choice, but must also be free of compulsion to conform, free of the need to defer to authority, and not fearful of following a principle to a conclusion which might be anathema to the established social order.

All of this presents a powerful argument for humanistic environmental education. If the ultimate goal of moral education is an autonomous decision-maker who bases choice upon ethical principles that are consistent, universal, and logically comprehensible, then students just enjoy an educational environment that is supportive, nonthreatening, and allows exploration of one's feelings as well as one's thought processes. The course of moral development as described by Kohlberg and his colleagues is one of persistent questioning of one's own reasons for taking a specific position on an issue. Such a process of self-examination and assessment will be more likely to occur in an educational environment marked by humanistic educational processes than in one where teacher-centered, highly competitive, and coercive learning methods predominate.

How might environmental education use the theories of moral development just described? The approach generally used is to confront a group with a moral dilemma. The dilemma might be presented as a story, a news item, or even a skit. It is presented in such a way that a central character emerges, and that character is personally confronted with a dilemma. This gimmick makes it easier for the learner to cast herself or himself into the position of the perplexed person. The group then engages in a procedure in which they establish an individual position on resolution of the dilemma and present their reasoning in support of their position. Hopefully there will be several stages of moral reasoning represented in the group, for growth occurs when people examine the reasoning of a person at the stage just above theirs and discovers that it resolves the dilemma somewhat more effectively than theirs does. Galbraith and James have summarized a procedure for confronting a moral dilemma in the following way (30):

FIGURE V

A PROCESS FOR STUDYING A MORAL DILEMMA


Reflect on an individual position
Establish individual positions
Establish class position
Establish reasons for positions
Confront a moral dilemma
State a tentative position
Present the dilemma
State the circumstances
Define terms
State the problem for the central character
Examine the reasoning
Examine reasons in a small group
Summarize reasoning
State a reason
Reflect on an individual position
Examine different reasons in terms of
Issues
Analogous dilemmas
Consequences
Previous dilemmas

A sample dilemma that poses an interesting problem of environmental decision-making will illustrate the learning potential in this process:

> *Ed Gilstrom is a game biologist and enforcement officer for the Alaska Department of Fish and Game. It is his job to oversee the management of caribou in a part of Game Management Unit #26 in northwestern Alaska. This is the region that supports the Western Arctic caribou herd, at one time the largest caribou herd in North America.*
>
> *Recently this Western Arctic herd has been dwindling. In 1970 game biologists, using sophisticated population assessment techniques, extrapolated a herd of 242,000 animals. This was down from previous assessments, but Ed and his colleagues were not concerned. They did another population survey in 1975 and were appalled to discover that they could find no more than 100,000 animals. This year's count revealed only 52,000 animals.*
>
> *Department biologists calculate that the herd will decline if more than 1,500 cows are taken by humans and other predators in the coming year. The Alaska natives living in the region, many of whom depend upon the caribou for subsistence, have been taking 25,000 animals each year. The best figures indicate that the wolf, major predator of the caribou, will take a minimum of 7,000 and a maximum of 11,000 caribou this year. There are approximately 1,300 wolves. If this depletion rate by humans and wolves is allowed to continue, Ed and his fellow biologists fear that the population will fall below its critical*

minimum level for reproduction, and the herd will be completely wiped out.

In view of this situation, the Game Commission has ruled that several actions must be taken. They have decided to kill up to 80% of the wolves in the game management units involved, and they will try to do this by aerial hunting. Further, they have established regulations that only bull caribou can be taken by natives, by permit only and one animal for each permit. Three-thousand permits have been issued by the Game Board, and these were awarded at a September meeting in Fairbanks. Only villages utilizing the caribou for subsistence were eligible for permits.

Unfortunately not all eligible villages received their permits. Koyukuk, for instance, which is in Ed's unit, sent no representative to the meeting because they were engaged in subsistence, seining and drying salmon. The Game Commission, noting their absence, assumed that they needed no permit and could subsist on salmon, beaver, moose and imported diet supplements. As it turns out, the Commission's assumption was incorrect. Vic, a native from Koyukuk who assists Ed occasionally, tells him that they failed to hear of the meeting. They would certainly have been present had they known about it.

Now it is spring and Ed is on patrol. He is troubled. Last week he met Vic and learned that village food supplies were depleted and they desperately needed caribou. He told his superiors about the natives' situation, but since all caribou

> *permits had been issued there was nothing they could do to help. They instead instructed Ed to keep a close watch on the village to see that they did not violate the caribou hunting restrictions. Today, as Ed cruises over the game management unit, he finds clear evidence on the snow--kill sites and snowmobile tracks--that Vic and his fellow villagers have been taking caribou. Departmental orders are clear--violators of regulations will be cited and prosecuted, with large fines and even jail terms as the likely result. The regulations must be adhered to if the herd is to be preserved. The long-run welfare of Vic and his people will be best served if the herd can be preserved. And other villages are adhering to the rules. On the other hand, Ed knows that Vic's people are desperate. They need the meat. They are proud and will not accept a dole, though so far no such relief has been offered anyhow. Ed understands their situation and sympathizes with his friends in the village.*
>
> *Ed follows the snowmachine tracks to the village. He finds the evidence of the violation. What should Ed, as both game biologist and caring human being, do in this situation?*

This is obviously a complex situation, but illustrates the possibilities for environmental education present in this approach to values education. The character in the situation is caught between two goods: the welfare of the herd in the long and short run, and the welfare of the villagers in the same terms. This is clearly a case where the ecologic ethic is involved. At one time there was a dynamic equilibrium present between caribou, wolves, and humans. Populations of caribou fluctuated, and those of wolves and humans also did so in response. This symbiotic situation maintained a healthy community, though it was hardly humane in modern terms. The change in the equation was in the human element where technology modified the capabilities for predation. This increased technological capacity, combined with a humanistic ethic, upset the balance and allowed the situation Ed found himself in to occur. Study of Ed's dilemma would be especially useful in a biology or environmental studies class because the dilemma involved could be generalized to many other contexts. Various positions for resolving it could be taken, ranging from enforcing the law to preserve job and receive acclaim, to enforcing the law to serve the long-term viability of the total community. While decisions might be the same, the reasoning would be the key. People are learning to reason out moral decisions, and improved skill in this cognitive function is the goal of this approach to values education.

The Values Analysis and Action Learning Approaches

These two approaches are grouped together because the action learning approach uses many of the same methods as values clarification, and the values analysis approach but goes beyond them to action projects within the school and community. Analysis is the approach to values education advocated by many leading social science educators and is the most rationalistic of the approaches mentioned here. Students are urged to collect verifiable facts about the worth or goodness of a phenomenon and to weigh those facts "guided not by the dictates of heart and conscience, but by the rules and procedures of logic (31)." The characteristics of this approach can be illustrated with an example using the model developed by Banks (32).

This approach to value study allows the student to examine a situation in which different value positions occur, in which perhaps a conflict is present, and to analyze that situation. The study involves taking a position on the issues present, basing the position upon analysis of facts. A teacher may set the scene for such a process by describing a situation. An example might be a farming community on the floodplain of the Skagit River where farmers grow various crops and a conflict exists between one group of large-scale farmers and another comprised of small-scale truck farmers. In describing this situation the teacher should gather as much data as possible about inputs and outputs of the specific farming processes, incomes to the farmers, costs, risks, market considerations, and so forth. When possible, the data should be local and specific. When the class is not in a farming locale, a prepared unit utilizing films and other aids can be used. The process might occur as follows:

Step #1: Observation - discrimination--The students should, after listening to the description of the situation, describe it in their own terms.

Step #2: Description - discrimination--The students describe the behaviors they observe in the farms they visit. They interview the farmers and ask them a set of questions about their operations. They make as few inferences as possible while they are doing this part of their study, for they are simply trying to get as much information about the two situations as they can.

Step #3: Identification - description, hypothesizing--Here the students hypothesize what values are present in the two farming situations. This third step is a difficult stage of the learning process and may require prompting. Teachers may have to assist the students with identification of specific values.

Step #4: Identification - analysis--In this step the students identify specific value conflicts and associate them with the behaviors they have described. The teacher may wish to inject a conflict into the situation which illustrates how the values described might come to clash. Here the students look at the conflict situation and analyze it. What is going on here? Why can the two groups not coexist? In this step the students come to better understand the values present in the situation.

Step #5: Hypothesizing--Here there is inquiry into the sources of the values observed in conflict in the situation. How did one person come to large farming and come to value the qualities thereof, while another came to small farming? Students state their hypotheses and back them up as thoroughly as possible with data and reasons.

Step #6: Recalling--Next, the students name all of the value alternatives which they can possibly perceive in the situation. In this case this process might involve considering all of the action alternatives that are open to the two groups separately and as a whole. Thus the big operators might maneuver and eventually crush the small operators. The small operators might simply sell to the big farms, voluntarily, without undue force, either because they see that ultimately they cannot prevail, or out of concern for the welfare of their larger neighbors (an unlikely prospect). Or the two groups of farmers might get together and explore entirely new alternatives, like moving into new crops and new markets together, perhaps forming cooperatives, and so forth. The students here survey all of the action alternatives available and identify the values present in the alternatives. They hypothesize what the consequences of the alternatives might be. In the end, they have an array of values which should give them a rather complete picture of the resource management and social problem before them.

Step #7: Choosing--Here the student is finally asked to make a decision, to choose what he or she would do in the situation. In this particular case, the student might be put into two positions--one as a small-scale farmer and the other as a large-scale farmer--and asked to decide what to do in the situation. The choice is made, and the student affirms his or her decision, explaining it either verbally or in writing.

It is essential in facilitating a process like this that the educator maintain a value-neutral position throughout, only personally taking a position at the appropriate point in the process, if at all, and then fully accepting the positions taken by the students. To do otherwise would negate the value of the inquiry. "Unless the teacher creates a classroom atmosphere which will allow and encourage students to express their true beliefs, value inquiry will simply become a game in which students will try to guess what responses the teacher wants them to make (33)." There may an awful temptation on the part of the teacher to be didactic about the "right" management of the situation, but yielding to the temptation would not allow the student to learn valuing skills.

This approach focuses on social value issues rather than personal moral dilemmas as does moral development. It is less concerned with individual choice and valuing than with learning analytical intellectual operations such as stating issues, questioning and substantiating the relevance of statements, identifying logical and empirical inconsistencies in arguments, and seeking and testing evidence. All of these skills are important to decision-making, and a complete instructional model for addressing the valuing goal must address them.

The final approach, action-learning, goes beyond thinking and feeling to acting. It provides specific opportunities for learners to act on their values. It is experiential. As noted earlier, many of the techniques, particularly those of values clarification and analysis, are used in this approach. Superka and his colleagues describe an illustrative instructional model that involves six steps.

1. Becoming aware of a problem or issue: Help students become conscious of a problem troubling others or themselves.
2. Understanding the problem or issue and taking a position: Help students to gather and analyze information and to take a person value position on the issue.
3. Deciding whether to act: Help students to clarify values about taking action and to make a decision about personal involvement.

4. Planning strategies and action steps: Help students to brainstorm and organize possible actions; provide skill and practice and anticipatory rehearsal.

5. Implementing strategies and taking action: Provide specific opportunities for carrying out plans either as individuals alone or as members of a group.

6. Reflecting on actions taken and considering next steps: Guide students into considering the consequences of the actions for others, for themselves, and in relation to the problems (34).

This model brings together the other approaches. It is certainly not always possible to engage in such a process, for it is time consuming and often impossible because the topic being studied does not lend itself to such an applied approach. But when it is possible, the action approach provides an excellent opportunity to combine both information assimilation and experiential learning and to use the great learning potential of such a combination.

A brief and simple example from an excellent environmental education resource illustrates this approach (35). Students are studying energy consumption and learn that convenience foods and fast-food outlets involve high energy subsidies. Processing, packaging, advertising, marketing, distribution, and preparation all require energy. Further, convenience food loses some of its nutritional value. The problem is close to the students, for convenience foods are provided in the school and are popular. Students gather information on the relative energy efficiency of various foods, on their nutritional value, and then inventory the school for convenience foods and fresh foods. They compile a list of foods that are minimally processed and packaged and are nutritionally valuable that might be sold in the school for snacks and lunches. Next they examine the possibilities for action. How might they introduce these foods into the school, and then encourage the student body to use them? Are they committed sufficiently toward reducing food-related energy consumption and improving nutrition to be willing to actively work on these problems within their school? If so, then how might they go about it? They design a strategy and implement it, meeting with school officials and using various persuasive techniques and media to encourage student use of the food provided. Finally, they evaluate the effectiveness of their approach.

This simple example illustrates how the action-learning approach might be used. It involves many of the skills used in analysis, so provides an opportunity for them to be learned. It requires clarification of personal values on the issue to a more complete degree than many values clarification activities, for the student must go forth to act on his or her convictions with members of the peer group. The action will test their conviction. And it certainly provides an opportunity for students to observe the relevance to their lives of such abstract and important concepts as energy efficiency and energy subsidy. Perhaps most importantly, they learn that responsibility comes with knowledge, and when they perceive a problem and a means to solution of that problem, they can and should act. The approach is useful in this regard in addressing Fromm's conditions for change.

It is clear, then, that much values education can be humanistic and experiential. All of the methods discussed will likely work most effectively in a supportive and humanistic educational environment. The making of choices about controversial issues when faced by a range of alternatives can be traumatic, and humane educational conditions increase the likelihood that threat and anxiety are reduced and the choices can be made and the outcomes assessed in a constructive way. Also, as the action-learning model best illustrates, active engagement with the issues and alternatives is possible and desirable. Values education requires interaction with other people in order to attain a maximum of realism in the inquiry. Sometimes this interaction is contrived, as in the values clarification and moral development approaches, and often it is realistic as in the analytical interaction with people and data and the actual problem-solving of action learning. Valuing is the foundation of decision-making, and consequently values education as described here is a keystone of EHEE.

#7: Humanism

The humanistic person is one who is empathetic, who seeks to understand other people's feelings and ideas and is able to do so. Such a person is also compassionate, sensing the needs of others and responding to them with support and assistance. He or she accepts others as of intrinsic worth, not requiring that the others adhere to some standard or norm or display qualities of character that he or she judges to be "good." A humanistic person does not manipulate others or exploit them, but rather cooperates with people for the mutual enhancement and growth of the self and the other. Recognizing his or her personal need for safety, love, and esteem, the humanistic person reaches out to satisfy these needs in others, and in so doing increases his satisfaction in himself. Such a person cares for other people. In the ultimate extension of humaneness, he or she cares not only for people in the immediate place and time in which he or she lives but extends concern to people in far away places and in the future. A goal of environmental education is development of people who make current decisions with the welfare of all people in the world in mind, and with awareness that actions in the present will have significant effects on the lives of people that inhabit the world in the future. The ideal person is one who seeks to maximize the opportunity of self and others to grow, to move toward realization of personal potential, and who accepts the responsibility to actively work toward this end. Such responsibility will involve perception of the unity of living things, for a sustainable society in a quality environment will be necessary for optimal human growth and development, and progress in this human sense cannot be at the expense of the environment.

This chapter is attempting to illustrate how humanistic education and experiential learning can contribute to environmental education. Since humanism is a definitive quality of humanistic education, its contribution to environmental education has been discussed earlier. The very nature of the educational processes of a humanistic environmental education will contribute to achievement of the goal of humanism. If the learner experiences humanism in the learning process, if the teacher accepts the learner and seeks to help that person toward growth, working always with the person as both a thinking and feeling being, then the learner will have experienced humanism, and the likelihood of becoming such a person would seem to be increased.

Perhaps it is not possible to teach humanistic behavior in any other way than through experience. A person cannot be a humanistic educator by following a set of rules. Consider, for example, the goal of humanistic education that the teacher accept the learner's needs and purposes and develop programs around the unique potential of that learner. This goal is not achievable unless the teacher really believes, in a total sense, that the learner's needs and purposes are in fact important. Aspy and Roebuck report that it is essential in training teachers in the skills necessary for humanistic education, for the trainer to be himself humanistic in the approach that is used with the teachers (36). Thus, the trainer must take the needs and purposes of the teachers into consideration in the training process if he wants them in turn to adopt similar consideration with the people whom they teach. It is not half so important what one says, in this regard, as what one does and is. Moustakas has made this point as well as anyone.

> Life comes from life, and the teacher is the living agent in the school. As a living agent, the teacher must not abdicate the human dimensions that he can communicate to the child; respect for his individuality; recognition of his particular interests, needs, and directions; encouragement of his growth in identity. The human talents, the human resources of the teacher are the teacher's primary value in the educative process (37).

He adds to this:

> The teacher must be present as a whole person, open to the expanding reality that every situation contains, and aware that the person is unique both in the way in which he learns and in what he learns. Being sensitive to the individuals awareness of his mode of being in the world, having a listening and perceptive attitude, and pointing to resources and opportunities that have meaning and relevance will evoke the being of the child to responsible self-actualization and to a sound and healthy identity (38).

Thus if the teachers as environmental educators hope to contribute to the growth of a caring and responsive person they will have to demonstrate those qualities in their relationship with the students.

How might these qualities appear in an EHEE curriculum? The teacher will act as a resource person and mover, indicating to the group that each is trusted and respected. Early in the process the purposes of individuals and the group are elicited and clarified and the teacher gathers as many resources for achievement of these purposes as possible. The teacher is one of these resources, and is flexible, for he or she realizes his or her limitations and does not need to play the role of expert and authority. As teacher and learners pursue their purposes, the teacher becomes a "participant learner" in the process and shares feelings and insights with the group in the same way as others do. Teachers in this situation share of themselves, thereby carrying out their responsibility to the group, and this sharing requires frank and open recognition of the purposes of the institution of which the group is a part, but not at the expense of the purposes of the learner (39). Harman describes the open, flexible, and non-defensive teacher that characterizes EHEE.

> Teaching that is responsive to the needs of the future will be much less a matter of purveying information and much more a matter of asking questions together. The teacher with a high degree of self-knowledge will depend less on his stored external knowledge. He will be unthreatened by an atmosphere of shared learning and mutual respect between "learner" and "teacher." He will be less likely to fear showing his inadequacy or ignorance, less likely to stick to material he knows, and less likely to be an impediment to the learner's progress. Thus, development of self-knowledge will appear to be a highly desirable component of the teacher's preparation (40).

Previous discussions in this chapter have indicated how such teachers would function, as in the processes described for studying values. They embark on an investigation the end product of which they are uncertain about, but the value of which they have used their knowledge and expertise to assess. Their professional responsibility is carried out in their selection and orchestration of learning experiences, their provision of learning resources and assisting in inquiry, and their encouragement. In summary, the learner in an EHEE process discovers the form and meaning of humanism by experiencing it in the relationship with the teacher. If the teacher cares for people and shows it, and does so as a part of his or her caring for the environment as a whole, then an invaluable lesson will be learned. Critics of environmentalism have argued that environmentalists are sometimes "pro-nature" and "anti-human," and this is sometimes so. EHEE would seek to avoid this, for it urges one to view humans as "nature" and thereby as much the concern of environmentalism as wilderness and wildlife. This is another manifestation of the holism discussed earlier in this chapter. Combs, writing about education in general, summarizes the importance of such education.

> Modern education must produce far more than persons with cognitive skills. It must produce human individuals, persons who can be relied upon to pull their own weight in our society, who can be counted upon to behave responsibly and cooperatively. We need good citizens, free of prejudice, concerned about their fellow citizens, loving, caring fathers and mothers, persons of good will whose values and purposes are positive, feeling persons with wants and desires likely to motivate them toward positive interactions. These are the things that make us human (41).

Joined with the other goals of EE, this one would seem to make achievement of the "land ethic" bringing social and ecological ethics together distinctly possible of achievement.

#8: Foster Creative Problem-Solving Skills and Attitudes

> To be creative means to experience life in one's own way, to perceive from one's own person, to draw upon one's own resources, capacities, roots. It means facing life directly and honestly; courageously searching for and discovering grief, joy, suffering, pain, struggle, conflict, and finally inner solitude (42).

Creatively solving a problem involves finding what one perceives to be the best way to tackle a challenge. When environmental educators state that they seek to encourage such problem-solving, they are recognizing a need for innovation. They are admitting that the conventional means of problem-solving seem inadequate to the problems currently present. Consistent with goals already discussed, they recognize too that there is much potential stored in people and that part of their role as educators is to release that potential. Finally, they recognize, as Moustakas points out, and as has been noted in the discussion of the goals of values education and humanism, that autonomy is an essential quality of creativity. People must be free and confident if they are to be creative. They must be willing and able to go beyond the expectations of their group, must be willing to explore new ground and to take risks.

Examples of activities that might be called creative problem-solving have been mentioned in other contexts throughout this paper. The young man who sought to curtail aerial harassment of eagles engaged in creative problem-solving. He asked his teacher what he should do, and rather than suggest to him a process, the teacher asked several leading questions and encouraged him to identify his own approach. This was used as an example of experiential learning, but it is also an example of an approach to fostering creative problem-solving skills and attitudes. Another example, used in discussion of values education, required the learners go into the field and learn what they could about the situation on the Skagit floodplain, questioning farmers, then bringing their data together and suggesting how the conflict might be resolved. The best way, perhaps the only way, to learn to be creative, is to experience it. This seems obvious, even a cliche, but provides additional rationale for experiential learning in environmental education.

The role of the educator is to foster creativity, to provide opportunities for it to emerge, and to encourage it when it does so. The first prerequisite is to grant freedom to the person who would be the creator. If Joe is to learn something about creativity in addressing the problem of cleaning up Squalicum Creek, he must be allowed to go his own way and must be encouraged to struggle and search for an approach that achieves the ends he seeks. The importance of freedom in learning has been mentioned numerous times in this study, but here again it is a requirement. It is freedom to try and to succeed or fail. If Joe perceives that a person has enough faith in him to support his ideas relative to solving a problem, he may apply his skills and knowledge to a degree he did not think possible. Then, whatever the outcome relative to the problem, he has learned a valuable lesson about himself.

> Just as the battle for political freedom must be won over and over again, so too in every life the battle for internal psychological freedom must be fought and won again and again, if men are to achieve and retain freedom from the tyranny of their own unconscious process, the freedom to understand the forces which determine their thoughts, feelings, purposes, goals and behaviors (43).

Self-knowledge is thus important to creativity, and teachers can seek methods by which to encourage self-knowledge. There are numerous resources available for this.

Here is a connection, of course, to humanistic education. The philosophy, goals, and methods of humanistic education are directed precisely at the learnings involved in creativity. It is the humanistic educator who is concerned with self-concept, who strives to facilitate self-actualization and to develop in all persons a sense of personal adequacy. It is that person who emphasizes freedom to learn and believes, as a cornerstone of his or her educational philosophy, in the worth and capability of the learner. Thus humanistic educators are specifically concerned with releasing the creative potential of people. And they do so usually with experiential processes. The EHEE connection becomes very clear in relation to this goal.

People vary greatly in their gifts. Perhaps a group has been studying agriculture and problems associated with it. The rising price of petroleum on the world market poses a problem because it will increase farmer's production costs, perhaps raise processing and packaging costs, and will certainly increase transportation costs. All of this will of course raise costs for consumers. How might consumer costs be kept down? If the instructor in this context is didactic, he or she will reveal the many theories and measures that writers on the subject have suggested. If, however, the goal of developing skill in creative problem-solving is in the instructor's mind, the next step in the process will be brainstorming. Students will be asked to identify all of the ways they can think of to keep costs down. How can this be done on the farm, in processing, and in transport? If no one moves toward modification of the entire production and distribution system in their thinking, a leading question might help. Are there any changes in the system that might help? Possibilities come forth. After many ideas have been uncritically solicited, they may be sorted out and the more plausible ones examined further. Finally, the teacher may describe some of the ideas of the "experts." The group may well have come up with some of the ideas on their own, and what a confidence booster that might be!

Continuing the process of examining agricultural problems, a study such as that described earlier in the discussion of values education might be pursued, with students going into the field to gather information. Information is evaluated and problems identified, then the task of solving the problems might be undertaken if the learning process extends to an action phase. In the action phase, additional opportunities for creativity might appear. Perhaps the group decides to mount an educational campaign to inform people about agricultural problems and possible solutions. Several people undertake to produce a slideshow, doing the photography, selecting or perhaps even writing and recording music for a sound track, writing a script, and so forth. All through this process opportunities for creativity emerge. If the instructor takes advantage of the opportunities in the spirit described earlier, much growth will occur, and service will be rendered.

Many examples like this might be cited. They occur throughout education. Environmental education merely dedicates itself to the idea that the world is becoming, that seemingly insoluble problems such as rampaging population growth and resource depletion will only be solved if creative minds address them. Solutions may come from technological innovations that allow growth in economy and technology, or from reassessing technological growth and innovation and pulling back to an existence within environmental limits. They may come from people learning to relate and cooperate in ways hardly imaginable today. Whatever the coping mechanisms that emerge, and the faith in humankind implicit in humanism lend confidence that they will, solutions will come from the wellspring of human understanding and creativity. Drews has summarized the task for educators.

> The teacher must learn to balance the "leading out" and the "letting be." The student must learn that the world can be both free and meaningful, that there are no easy answers to hard questions, and that truth is more a direction than a point of arrival. Such understandings will probably be greatest in those times of open exploration of life in all its chaotic unpredictability. At such moments the student may sense the joy of coming to original conclusions, and as Einstein did, he may pause to revel in the mystery of the unknown (44).

#9: Develop Information-Gathering, Organizational and Decision-Making Skills and Knowledge

The ultimate goal of the environmental educator is to develop persons who act effectively as agents for maintenance of environmental quality. Such persons must possess a set of specific skills, some of which have emerged from earlier discussion. The final task in this long chapter is to identify these specific skills and reiterate the obvious point made so often already that these skills can be acquired through experience. The specific skills are certainly not the sole responsibility of environmental education. Rather, as an integral part of the total curriculum, environmental education provides in some instances a unique opportunity to develop these skills. On the other hand, effective action as an environmental agent is impossible if a person does not possess the basic skills of symbolic manipulation, as in reading, writing and arithmetic. So there is, of course, complementarity throughout between environmental education and the rest of the curriculum.

A skill involves the application of knowledge, and in the context of environmental problem perception and solution it ultimately entails deciding which action to take when faced with a range of alternatives, each of which will have a different impact on the environment. The skills involved inthe decision-making process will include the following:

1. Being aware, using the senses to observe the environment as directly experienced.
2. Gathering information, at various stages in a study process, initially to determine where study should be focused, as in selecting the problem, and later to understand the phenomenon or problem being studied. These include, of course, research skills of all levels of sophistication.

   --library, laboratory and field research skills.
   --communication skills, as in those necessary to interview people.
3. Organizational skills, both for organizing the process of information-gathering and for giving information gathered an accessible structure.
4. Evaluative skills necessary to process the information into a usable form for making judgments.

   --as in analysis which breaks information down in order to understand the parts.

   --as in synthesis, which brings information together into wholes (especially important in environmental thought).

   --critical thinking, which involves distinguishing fact from opinion and supported from unsupported argument.

   --logical thinking, which contributes rules to the evaluative process.

   --feeling, the ability to recognize and accept inner experience and relate it to external experience.

5. Decision-making skills, directly allied with evaluation but which involve the act of choosing.

   --Goal-setting.

   --Planning.

   --Clarifying alternatives, and considering the consequences of action on each alternative.

   --Selecting an alternative, acting upon it, and observing the consequences (awareness, information-gathering, and evaluative skills all come into play here), and adjusting to consequences, which may mean choosing another alternative.

6. Problem-solving, which incorporates all of the above skills, but is a synthesis of them involving developing a plan of action to resolve the problem, implementing the plan, and evaluating the process and results.

   --Communication skills, for most problems involving human action require human interaction for solution. The sending of clear messages, empathic listening and effective questioning, the giving and receiving of feedback, and the resolution of conflicts are all necessary to effective communication (45).

There is not space here to break these skills down further, but this list indicates the range of skill development which seems necessary to effective action in the environment. Both cognitive and affective skills are present. The skill dimensions of goals previously treated in this chapter are included; and taken as a whole, this chapter should reveal the scope of skill development involved in environmental education and suggest many ways to go about the task.

The point of this chapter has been to indicate how experience and humanism can contribute to environmental education. In the case of skills, the importance of experience is obvious. Skills are learned through repetitive practice of them, so if people are to become good at gathering and organizing information, at evaluating it and applying it, they should have opportunities to practice these skills. Processes described earlier illustrate how this might be accomplished. Educators should not take only the easiest and most "efficient" teacher-centered and didactic route to conveying information, but recognizing that use of that information is both the essence and the test of learning, they should seek to maximize the opportunity to work with it.

In summary and conclusion of this chapter, an effort has been made to show how humanistic and experiential education can contribute to effective environmental education. Concepts and ideas, attitudes and values, and skills are all important parts of that education, and the learning of these elements can be enhanced through a constant vigilance on the educator's part to opportunities to relate whatever is being studied to the personal world of the learner. The environment is all-encompassing, so these opportunities are common. Discussion in this chapter has been organized around a set of goals which span the range of the concerns of environmental education. Implicit in this definition of the field is the idea that merely knowing the facts about a problem is not enough. Additional ingredients of care and commitment are necessary along with the skills to do something about the problems one uncovers. As Bennett and his colleagues have noted, much knowledge about problems but a low opinion of one's ability to do anything about them leads to apathy and despair. What is needed is such knowledge coupled with a strong belief in one's abilities to understand and to act (46). Self-confidence and courage are called for. Thus environmental education must be strongly affective as well as cognitive in its concerns, and the arguments presented here have suggested that experiential learning can do much to help move in that direction.

Footnotes

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CHAPTER VIII

EXAMPLES OF EXPERIENTIAL HUMANISTIC ENVIRONMENTAL EDUCATION

Are there environmental education curricula that incorporate all elements of Experiential-Humanistic-Environmental Education as it has been described in the preceding chapters? There are programs that display qualities of EHEE to varying degrees. Some of them have been mentioned in earlier discussion, but no programs may be described as a model. Most curricula utilize experiential learning processes to some degree even if it be simply in the laboratory or an occasional field trip. Outdoor education certainly utilizes such processes, for it takes students into the field where they can relate directly to the natural world. Fewer environmental education curricula incorporate humanistic objectives as an avowed part of their purpose. Humanistically-oriented teachers utilize curriculum materials developed for environmental education which incorporate learning by doing and thereby engage in EHEE. Steve Van Matre's acclimatization approach comes as close as anything to a curriculum designed as whole along EHEE lines. But this is designed primarily for a camp setting and is almost totally experiential without the use of information assimilation that is essential to a total EHEE curriculum. So it can be stated with some assurance that EHEE is not common as a calculated approach in environmental education today. This being the case, this chapter will be devoted to describing, for purposes of illustration, several programs that have been designed and conducted by the author along the lines described in this study. They are designed for college students and adults and thereby do not precisely illustrate how the various elements that comprise EHEE might come together at other levels of education.

The Environmental Education Curriculum at Huxley College of Environmental Studies, Western Washington University

Huxley College is a cluster college of Western Washington University in Bellingham, Washington that is devoted entirely to the study of the environment. Its curriculum is not divided along traditional disciplinary lines but is instead organized around interdisciplinary "concentrations," one of which is Environmental Education. This concentration attempts to prepare students to become environmental educators, whether they work in public or private schools, for resource management and park and recreation agencies, or even for the communications industry. The other concentrations are Ecosystems Analysis and Assessment, Environmental Health, Environmental Planning, and Social Assessment and Policy. All students in the college, regardless of their concentration, take a common core of courses. In terms of the objectives discussed in the preceding chapter, these courses primarily address the acquisition of conceptual understanding of natural and human-influenced environments. Course titles include: Applied Ecology, which examines the science of ecology and how it is important to understanding and resolving environmental problems; Introduction to Pollution, which reviews selected pollution problems such as pesticide abuse, air pollution from automobiles, and chemical pollution of water; Human Ecology, which addresses the broad topic of the interaction between human cultures and the environments that surround and include them; Environmental Economics, which describes how human economic institutions contribute to environmental problems and how such institutions can be utilized to help resolve the problems; and Environmental Ethics, which presents the students with ethical dilemmas and questions that arise from environmentalism and describes the difficulties of broadening social ethics to include the entire community of living things that they have examined in biology and ecology. All environmental education students build their conceptual framework in these courses, setting it on the foundation of general education with which they enter Huxley College. They come to Huxley only after they have completed the general education requirements of the University, thereby grounding themselves in the basics of science and social science necessary to successful examination of environmental phenomena and problems.

Students who elect to study environmental education take an introductory overview course at the beginning of their program in which they are exposed to the theory of environmental education that underlies the program design that they will experience. This course presents the theory of EHEE through the mediums of lectures, readings, and classroom experience. The instructor makes an effort to illustrate the nature of EHEE through the learning process of this class. The first few hours of the class are spent "building the group." Exercises such as "Getting Acquainted Triads," "Who Am I?: A Cocktail Mix," and sharing of reasons for being in class provide an opportunity for the group to come to know each other a bit and to penetrate the patina of anxiety and reticence that often grips college students when they are together in a new group (1).

It also sets the tone of the experience, pointing out that the course will not be a passive experience, but will rather encourage and even require that the student fully participate in the learning processes of themselves and their fellow students. This, in fact, sets the tone of the entire environmental education curriculum.

There is a definite plan for the course, but there is also opportunity for the students to influence the direction of their study. The course examines the historical background of environmental education, tracing its development from nature education up through outdoor education to the current version that is called environmental education. Various representative techniques of outdoor education are reviewed. A conceptual framework of environmental education is examined, and the way that values relate to environmental decision-making is analyzed, along with ideas as to how environmental education can address the problem of values education. Humanistic education is defined and described and examples of humanistic curricula are reviewed. The problem of humanizing environmental education is discussed. Finally, representative environmental education curricula are reviewed. Assignments in the course require the student to carry out a major project, but while ideas are suggested, no specific project is assigned. Students are asked to examine their personal interests and to ask themselves what part of the broad field of environmental education is most interesting to them. They can then select a topic for in-depth study helpful to them in defining their specific directions.

Grading is a requirement of the institution, and letter grades are used, but an effort is made to minimize the grade as a motivator in the course. The issue of grading is discussed, and some agreement is reached as to how grades will be determined. There are various ways to do this, but the important point is that the students have a part in the decisions regarding the approach to grading and evaluation. No matter which approach is taken, all students may submit a self-evaluation at the end of the course which is used in the final grading process. In short, an effort is made to be humanistic, in the sense described in earlier chapters, in this introductory course and in all other environmental education courses offered at Huxley College. The instructor tries at all times to be open and sensitive to the needs and aspirations of the students, while at the same time providing them with direction and assistance that is necessary for them to have an adequate grasp of the theory and methodology of the field of environmental education.

Other environmental education courses are offered with this same emphasis on person-centeredness. They include courses titled the Environmental Education Curriculum, Experiential Learning in Environmental Education, Outdoor Education, Environmental Education in the Elementary School, and Environmental Interpretation. Each course focuses on a different dimension of environmental education, building on the introductory exposure to the dimensions that was acquired in the first course. The important point here is that a strong attempt is made to demonstrate the qualities of a humanistic educational experience in the learning experience of a student of environmental education at Huxley College.

A similar approach is taken to the teaching of the importance of experience in learning. There is a course, as just noted, that focuses specifically on the topic, but this merely provides a rationale and reviews methodology and examples of experiential education programs. The real education about experiential education comes from experiencing it in the course of training for work as environmental educators. As with humanistic education, maximum advantage is taken of opportunities for experiential learning in the environmental education curriculum itself.

An example is the participation of Huxley College students in contracting to operate Youth Conservation Corps camps. The U.S. Congress created the Youth Conservation Corps in 1970. It was established as a youth employment program with educational potential. Young people, aged 15-18, would work in some of America's most beautiful and valuable land and would come to understand and appreciate the values of such land. Specifically, as stated in memoranda from the Departments of Interior and Agriculture, they would:

1. Learn about the natural environment including natural resources.
2. Learn about the meaningful use, management, and protection of the natural resources.
3. Be gainfully employed in outdoor activities directly relating to the use, management and protection of natural resources.
4. Accomplish needed conservation work which improves, maintains, and/or enhances one or more of the natural resources.
5. Acquire increased self-discipline.
6. Better work with and relate with peers and superiors.
7. Build lasting cultural and communication bridges between youth from various social, ethnic, racial, and economic backgrounds (2).

The Congress allocates funds to operate Youth Conservation Corps camps which work on various conservation projects such as trail building and maintenance, erosion control, and campground construction and maintenance, to federal agencies who manage public lands, such as the National Park Service and the Forest Service. These agencies may run the camps themselves, or contract them out to educational institutions. This opportunity to contract such camps provides Huxley College with a means by which to provide environmental education students with direct experience in their field. Students can apply the theory and methodology to which they have been exposed in their courses in a realistic educational situation, can work with young people and experience the problems of translating their ideas into effective learning experiences for these people.

Environmental education students and faculty meet and discuss the potential of participating in this program and decide to do it. Various arrangements within the University of which Huxley College is a part have to be made, and students make all such arrangements with advice from faculty. Further, they contact the resource management agencies that are putting camps out to bid and request bid notices. When these are received, they review the various possibilities and decide which camps they will bid on, then set about preparing the bids. This task requires them to decide what their program will be and how much it will cost. They have to be cognizant of the competitive nature of the bidding process and keep their costs down, but a most interesting and educational aspect of this part of the YCC process is conceptualizing the various programs that they will conduct in the camps. They have to describe the general and administrative components of their operation, staff qualifications and responsibilities, the staff training program, the safety plan, and statements on work projects, environmental education program, the living component, and the recreational program. They will have young people living together, often in isolated environments that are entirely new to them, for up to eight weeks. They have to describe how they are going to handle this situation, cost it out, and present their budget to the federal agencies.

This process of preparing bids presents the challenge to students of studying and following the often complex guidelines of federal agencies. They have to develop and describe a program idea and compile a document which will be submitted for scrutiny by people outside of the University. It is not an "academic" exercise but an effort that will be judged by criteria in the "real" world beyond the walls of academe, and that can yield a return in funds and service to nature and to young people. In this bidding process students work with peers and learn the value and necessity of cooperation. They test their abilities and learn:

--how bureaucracies function, notably the University and its research office and the federal agencies who let the bids, and how to deal with problems that bureaucratic procedures involve and create.

--that the imposing bureaucratic language spoken by federal agencies is not really imposing, and how to translate that language, and even to use it when necessary to accomplish a goal.

--specific concepts and methodologies in the areas of leadership, conflict resolution, environmental education, program management and administration.

--how to organize a group to carry out a task under a deadline, and how to work together cooperatively to accomplish the task.

--the value of clear, concise writing, and careful organization of ideas, in achieving a goal.

These learnings and others emerge from the bidding process only.

When bids are successful and contracts received, the difficult task of carrying through on the ideas conceived in the bid preparation begins. Staff are selected by faculty from the students who have prepared the bids. They then organize for the ordering of food and other resources necessary to operate the camps, contact the enrollees, the 15-18-year olds who will work in the camps, meet with them and their parents, and depart for their camps when the time to begin arrives.

Camps range in duration from five to eight weeks. The Huxley students are responsible for the safety of the enrollees, for successful completion of work projects assigned by the agency sponsoring the camp, and for implementation of an environmental education program that will raise enrollee's environmental awareness. They have to live twenty-four hours a day with the group, and assist them with a variety of problems. Further, they have to motivate them to work and to participate in the environmental education program. Enrollees are not out there to go to school, so the leaders have to devise methods of environmental education that will not be too reminiscent of school. Didactic modes of learning seldom are useful. The leaders have to have some idea of what they hope to teach in the situation and then be watchful for opportunities for learning. These can come at any time, be they on the trail traveling to a work site, engaged in the work itself, or sitting around the campfire after dinner. Group living and the problems that arise when teenagers are forced to live together in close quarters provide opportunities to teach about cooperation and tolerance. The tasks of meal preparation and maintenance of camp hygiene offer opportunities for lessons about health and nutrition. The task for the leaders is simply to take advantage of learning opportunities whenever they arrive.

The camp situation provides the Huxley student leaders with opportunities to test specific environmental education theories and methods they have examined in their coursework at the University. Will the acclimatization approach work? How can we teach humanism and probe values? When can we utilize values clarification activities? At what point do we decide that a person is too disruptive and is a negative influence on the group and send him home? Is the tradeoff of potential growth in that person worth the sacrifice of disruption of the experience of other people? How do we assess the needs and aspirations of the enrollees and incorporate them into our environmental education activities? How do we evaluate the effectiveness of the environmental education work we are doing? Such problems test the students and teach them much about their personal resources and their idealism. They try various techniques of coping with problems and facilitating education and fail with some and succeed with others. They find that they can carry off certain approaches much better than others and that fellow staff can do things that they cannot do. In this way they make progress toward the self-knowledge that marks a humanistic educator. They also encounter the limits of their knowledge which can motivate them to return to classrooms and books with renewed enthusiasm and dedication. They also are forced to utilize experiential learning much of the time, for they are not in a place where people can or will utilize books and other resources that contribute to learning through the information-assimilation approach. They learn the limitations of experiential learning and something about facilitating it. Almost without exception they come away from this experience with insight into their needs in terms of skill development and knowledge and with an understanding of the humanistic and experiential dimensions of environmental education. They appreciate the difficulties involved in providing leadership in a caring and non-authoritarian way, of accepting people who may not perceive a situation in the same way that they do, and of making the sacrifices of self that are sometimes necessary to help with the growth of another. In short, they have tested ideas and acquired insight into EHEE by trying to facilitate it.

Other opportunities for experience in addition to this one complement the academic coursework of environmental education students. In another instance, they develop learning packages in a seminar on EHEE and then implement them with school children. These units are developed according to a specified format, with careful attention to statement of goals and objectives, to design of an implementation plan, to evaluation, and to integration of the learning unit into the curriculum of the classroom teacher whose students participate in the experience. All of these units take the school children out of their classroom environment and, under the leadership of a Huxley student, engage them in an exploration of their environment. The Huxley student works with the teacher and the children in the classroom prior to the experience, and then in the classroom with followup to it. They study carefully how their unit relates to the rest of the curriculum, for they are engaging not only in an educational program for themselves and for the school children but for the teachers and administrators of the school district involved as well. An example will best illustrate this approach.

Two Huxley students, Alan and Diane, have designed a program which they call "Atlantis." It is designed for high school students and involves week-long explorations of the marine environment. It is offered to regional school districts under the auspices of the county park department. The following is their introduction to the program:

> In an effort to take advantage of the area's unique potential as a learning resource, Whatcom County Parks will be offering an opportunity for high school students to learn through direct experience about the marine ecosystem of Washington State. To be offered during the school week, this program will consist of a five-day session combining marine education, "on the water" experience in touring kayaks, and an experience in living and working together with a group of fellow students. In keeping with the County Parks' emphasis on "learning by doing," Atlantis provides a dynamic, integrated curriculum that aims to enrich conventional approaches to learning. Our theme is experiential education, involving more of the student's physical self, his or her personality, emotions and intellect in an actual learning situation in the field.
>
> Using the environment as a common denominator, Atlantis integrates meaningful experiences from all areas of the curriculum into an interdisciplinary whole. We strive to build an unfragmented concept of the interrelatedness of all things, both physical and academic.
>
> Atlantis is not intended to create marine biologists. Instead, we try to provide an overview of how marine systems work, and how man affects and interacts with the marine environment. We emphasize the discovery approach, to give students the knowledge and perhaps more importantly, the appreciation and motivation necessary for the intelligent use of this area's unique marine environment. In dealing with environmental needs, knowledge is not enough. It must be coupled with positive feelings and attitudes about the natural environment. Atlantis will provide a place where students can develop these attitudes and combine them with a sound biological base in a positive, meaningful, learning experience. In addition, the social aspect of the program gives high school students the opportunity to live and work with their peers in the "laboratory of life," giving them invaluable experience in dealing with individual and group responsibilities, group decision-making, and the interaction of working relationships with others of their own age group.
>
> One of the things we try to emphasize is that the process of learning is as important as the product, just as the relationships in the sea are as important as the particular organisms. Just as we talk about the qualities of marine environments, we might discuss the quality of human environments. The idea is to create a truly integrated curriculum, combining all these facets into a holistic experience that students will remember as a positive, creative, and enjoyable learning experience (3).

This statement was prepared for teachers and school district administrators and presents the philosophy and rationale of the proposed program. The problem of introducing such a program to rather conservative educators is a valuable learning experience in itself for Alan and Diane. They learn of attitudes among school people toward such out-of-class program ideas. They experience the constraints that all teachers have to live with. After presenting the rationale, the specific goals and objectives of the program are described, along with a proposed schedule. The school district decides to go with the idea, and the two program originators recruit assistants from among fellow students who are working in environmental education and have experience with kayaks. The group works out the details for the program, prepares a brief list of readings, holds pre-trip meetings with the students who will make the trip, explains the program to skeptical parents and assures them of the safety of the venture, and does all of the myriad jobs that are necessary to prepare for a trip like this.

The day for departure arrives and the group drives to the University marine laboratory for a brief introduction to marine studies by the director of the center. They board ferries and travel to one of the San Juan Islands from which they will venture in their kayaks. The first day is spent on various introductory activities. If the group has not been together previously the Huxley group uses get-acquainted activities to build group coherence and encourage interaction. Day two finds the group setting out in their kayaks. They have spent some practice time in the boats previous to the trip, so safety rules need only be reviewed. Then it is off to examine tidal zones and birdlife. So it goes on through the week. The Huxley students have come prepared with specific activities designed to acquaint students with the marine environment. They have also come prepared to closely observe their group to spot any special interest that any member of the group might have and to provide resources for pursuit of those interests whenever possible. They have studied the marine environment extensively themselves in preparation for the program but do not pass themselves off as experts. Whenever possible they encourage the group to inquire into the problems they encounter. Rather than answer their questions about plants and animals, the leaders provide the curious student with field guides and other such resources. When a question cannot be answered by either the student or the leader, it is noted and will be explored later upon return to school, if that is possible.

Half of one day is spent on a solo in which the students all are stationed in a place which is theirs alone for the duration of their stay there. They are not to communicate with anyone else nor to leave their assigned spot. The purpose of this experience is to provide time for meditation and quiet contemplation of the marine environment in which they have spent several days. The leaders recognize that when the group is together they are involved in many social activities which affect their ability to perceive the great variety of interesting and beautiful elements in their environment. This solo exercise removes the distractions of the group and allows for greater concentration. After the trip is completed and the students are back in school, the leaders work with them in their classrooms, if possible, providing followup to the trip. Sometimes they hold reunions of the group months later, for a surprisingly strong bond can develop in a very short time when people are sharing an experience that is intense and even a bit stressful. People often love to get back together and reminisce about their experience.

All of this provides very valuable experience for Alan and Diane and their helpers. As in the case of YCC, these Huxley students have undertaken a project that carries much responsibility. Once they go before school officials and have their program accepted, they have undertaken an obligation. If they falter, the faculty remind them of the obligation they have undertaken, but this seldom happens. The students learn much about program design, implementation and evaluation. They become familiar with the ways in which schools operate and the demands that such institutions place upon all educators associated with them. They learn much about the substantive area involved in their unit, in this case the marine environment. It is important to note that Alan and Diane have studied marine biology and ecology as part of their environmental studies program so that they have a base upon which to build their expertise. Still, they recognize that they are not experts in the field but do not let that daunt them. They subscribe to the philosophy of Willis Harman quoted earlier in this study that education is as much a matter of asking questions together as anything, so they accept the fact that they are learning along with the high school students and are not threatened by their great areas of ignorance. They are instead challenged by them and admit to the students that they are learning right along with them. This admission in itself is of value to the high school people, for they are exposed to an approach to teaching that they have rarely encountered in their school experience.

After they complete such a program, the Huxley students return to the faculty who have been assisting them all along and review what happened. Where were they successful and why? Where were they unsuccessful and why? What would they do differently in preparing for the experience another time? Did the educational theories they were trying out in the field hold up? What special problems did they encounter and what preparation might help them to be ready for such problems in the future? The questions are many, and the review is very important to the overall educational process of the Huxley students because it points out to them the areas they need to work on. Such awareness provides excellent motivation for them to return to classes and library. They will study with renewed awareness of the importance of specific skills and knowledge. They will understand the relevance to their needs of the concepts and theories and methods which they are examining. Thus do they learn about experiential learning by experiencing it and by analyzing it with peers and their teachers.

There are still other experiences that environmental education students can avail themselves of. All must do an internship or study a problem independently before they can graduate. Most environmental education students opt for the internship. They work in school camps, with environmental groups such as Friends of the Earth and The Wilderness Society, in nature centers and zoos, for park and recreation departments and schools. A group of college students, not all of them Huxley students, run a school camp for a local school district. They take a course in school camping and outdoor education taught by public school teachers, then staff the camp that these teachers have set up. They gain experience working with sixth graders and the high school students who assist as counselors, as well as with the teachers themselves. In all of these programs, a maximum of effort is expended by the faculty to assess the learning needs of each individual Huxley student and the student plays a large role in program design and redesign from start to finish of the Huxley College curriculum. The first interview that faculty have with students sets the tone. The key question is "Why have you come to us? What do you hope to get out of your educational experience here?" They may not know, and in this case the adviser can help provide direction, allow for exploration, and suggest alternative paths that seem open. If the student knows exactly where he or she wants to go, then the faculty tries to help them design the best path to those goals, within the constraints of curriculum and university resources. The program is "freedom within limits," which is the essence of humanistic education. Ultimate responsibility for learning lies with the student, and this is made clear from the start. It is reiterated many times during the student's Huxley experience, for that is the lesson of experiential learning. Thus does the Huxley College environmental education student learn of EHEE by experience of such an education.

Thoreauvian Quest

A second example of EHEE takes the form of a workshop. Participants spend seven continuous weeks living in a wilderness setting far removed from their normal life situation. They spend one week before their retreat preparing for it, discussing several readings done before coming together with the workshop group, planning the menu and purchasing food, and organizing the equipment they will need for their wilderness experience. After completing the seven weeks, they return to civilization and spend a week winding down, discussing their experience, reviewing reading, and preparing their journals. This workshop is credited through Huxley College and is open to any interested person over eighteen years of age. The program was first offered during the summer of 1978, and only two people participated, but the concept of the workshop is illustrative of the type of program which addresses in particular some of the ideas of Erich Fromm described earlier in this study. It provides people with an opportunity to reassess their values and life patterns, to examine their way of life.

The inspiration for this workshop comes from many sources. Over the centuries many people have left the civilized world for a time and traveled to the wilderness, utilizing it as a refuge and disciplinary force. In Biblical accounts, Moses wandered in the wilderness for forty years, finally receiving the Ten Commandments on Mount Sinai. Elija went into the wilderness for forty days and received inspiration and guidance from God. Jesus himself ". . .was led by the Spirit into the wilderness to be tempted by the devil (4)." After forty days, Jesus emerged prepared to speak for God. He had cleansed his spirit and went forth to do his work.

Down through the years since Christ, even to modern times, other men have sought wild places for refuge and religious purity. Henry David Thoreau went to live alone at Walden Pond in 1845, and explained his reasons for doing so.

> I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived (5).

The solitude of Walden gave the gifted Thoreau the opportunity to probe his inner being and observe the world around him, relating it to that being. He goes on:

> I did not wish to live what was not life, living is so dear. . . .I wanted to live deep and suck out all the marrow of life, to live so sturdily and Spartan-like as to put to rout all that was not life, to cut a broad swath and shave close, to drive life into a corner, and reduce it to its lowest terms . . . (6).

Thoreau went to nature seeking to know the fundamentals of life, such qualities as self-sufficiency, order and beauty, and his writings indicate that he experienced them.

As noted in earlier chapters, there is no less need to know such fundamentals now in the twentieth century than there was in Thoreau's time. Thoreau observed his neighbors and noted their "lives of quiet desperation (7)." He saw that "men have become the tools of their tools (8)," and that "through want of enterprise and faith men are where they are, buying and selling, and spending their lives like serfs (9)." Thoreau might make the same observation about contemporary America where people are still caught in a furious round of activity, seeking to satisfy their insatiable wants and not succeeding. There is little time or inclination to pursue the fundamentals of which Thoreau wrote so elegantly.

The views of several critics of the contemporary situation were mentioned earlier. Schumacher counsels that what is needed is "wisdom." He argues that ". . .the foundations of peace cannot be laid by universal prosperity, in the modern sense, because such prosperity, if attainable at all, is attainable only by cultivating such drives of human nature as greed and envy, which destroy intelligence, happiness, serenity, and thereby the peacefulness of man (10)." This is an echo of Thoreau, a century removed. Schumacher notes also that "the cultivation and expansion of needs is the antithesis of wisdom (11)." Thoreau also made the point as follows:

> Men think it is essential that the Nation have commerce, and export ice, and talk through a telegraph, and ride thirty miles an hour, without a doubt, whether they do or not; but whether we should live like baboons or like men, is a little uncertain (12).

Both Schumacher and Thoreau pondered the nature of wisdom. What is it and where can it be found? Schumacher says:

> Here we come to the crux of the matter: it can be read about in numerous publications but it can be found only inside oneself. To be able to find it, one has first to liberate oneself from such masters as greed and envy. The stillness following liberation--even if only momentary--produces the insights of wisdom which are obtainable in no other way (13).

What does all of this have to do with the workshop and with EHEE? Thoreau went to Walden Pond to gain time and space in which to liberate himself from the masters of which Schumacher writes. Much of Walden is a description of this liberation and of the wisdom that followed from it. People today can seek their personal Walden Ponds, can seek the "insights of wisdom" Schumacher describes, and one place in which they can do so is the wilderness. Fifteen miles from roads and automobiles, daily news and the demands of routine, people can slow their pace and live a relatively simple existence. They can have only the amenities which can be packed on their backs to their remote location. They can reflect undisturbed on matters of importance to them.

The workshop is designed in particular to encourage the participants to examine the distinction between the "having" and the "being" modes that Fromm described in the previously-mentioned book of that title. When people live alone or in small groups in a wilderness setting for an extended period of time they have the opportunity to reflect on "having." They cannot have much, in the material sense, in such a setting, and perhaps they will find that the greater simplicity they experience will give them insight into demands of their normal lifestyle which are interfering with their achievement of personal potential and joy in living. All participants will have read, studied, and discussed Fromm's ideas before embarking on their trip, and perhaps they will come back from the experience with a greater understanding of the nature of the "unalienated, being-oriented individual" that Fromm believes to be necessary to achievement of his "New Society (14)."

Precisely what form does this workshop experience take? It begins with readings, some assigned and some selected by the participants. Books assigned include, of course, Erich Fromm's To Have or To Be. This book raises their awareness of the instructor's goal in holding the workshop, the exploration of alternative ways of living. Thoreau's Walden, and Aldo Leopold's Sand County Almanac complement Fromm's book by drawing attention to some of the values of living in the natural wilderness setting of the workshop. Joseph Wood Krutch's The Great Chain of Life stimulates thought about the natural setting, a setting which many of the participants may not think about very often because they are urban people. Additional suggested but not required readings include various writings of Alan Watts, Clark Moustakas' Creativity and Conformity and Loneliness, Carlos Castenada's Journey to Ixtlan, and Sam Keen's To a Dancing God. An annotated list of such books is given to the participants in advance of the workshop so that they can select readings which might be of particular personal interest. They are encouraged in addition to include choices of their own. All of these readings are discussed informally around campfires in the wilderness on a regular basis, and people are encouraged to share their concerns and insights that are emerging as a result of their combined thinking and experience. They pack these books, in lightweight paperback editions, into their wilderness home.

This home is the Pasayten Wilderness of North Central Washington. It is high and open country, relatively dry, and is not used heavily by recreationists. The workshop group hikes in to a predetermined area and sets up camp. They will live in pairs or trios, depending on the size of the group. The 1978 group lived, of course, as a pair. They have only a minimal schedule to keep. Occasionally they will meet with the workshop director, who is camped elsewhere, for a discussion of reading and of problems they are encountering. Dave, for example, found himself getting rather bored after several weeks and inquired as to what he could do to enhance his experience. The suggestion was made that he explore the country around his camp, learning it as thoroughly as possible. He could study the plants and animals, climb the ridges, and travel to backcountry lakes to try his hand at fishing. He was not experienced in the wilderness and was cautious about venturing out, as he should be. But with encouragement and examination of skills he could and should develop, such as map and compass navigation, he ventured forth and was less plagued by boredom and loneliness.

At some point during the seven weeks the group is encouraged to depart on a solo. They select or are assigned a spot with a water supply and set up camp for a seven-day period, during which they have no contact with anyone. This is certainly a rare experience in the crowded modern world, but is an opportunity to commune with oneself that is not achievable any other way. People are not forced to do a solo, of course, but are encouraged to do so. If they do not think they can sustain a seven-day experience, they can try it for a shorter time, meet with the leader at a specified time, and decide then whether or not to continue. In the solo experience, as to some degree in the Thoreauvian Quest experience as a whole, the experience of time slows down. Awareness is increased, both of external entities and internal states. Normal daily routines in the outside world often crowd the mind with anticipation and anxiety. People think ahead, prepare themselves for what is coming next, struggle to cope with a multitude of stimuli, as when they strive to take in a conversation with several people. They do not exist much of the time in the present. People sitting alone in a wilderness setting, on the other hand, have the freedom not only to think about their past, about loved ones on the "outside," but also about their immediate environment. They notice the sky, the air temperature and its changes, the insects that come to plague them, the flowers that bloom around them and the birds that visit camp. They monitor their physical condition, for they do not have the usual health support system handy to rely upon in case of need. They attend to matters pressing out from inside of them, for they do not have myriad distractions to assist in avoidance of internal realities that demand attention. In short, the person on solo has the opportunity to experience the "being fully present where one is" that Erich Fromm regards as an essential ingredient of the "being mode (15)." One of the participants, Dave, writes of this quality of his experience as follows:

> This wilderness area is worthy of being sustained because it presents me with the opportunity to confront my place of origin. Taken away are all the middlemen. I have arrived here through my own effort and there is no one to interpret me or what I see and feel but myself. The forces which surround me are not interested in impressing me or enlisting me to their cause or the products thereof. Therefore I am free to do the same and meet myself naked--at least more than ever before--and answer who I am. A product of this is knowing where I want to go, but only through remembering that I must reap what is here now, can I enjoy the future when I reach it. Here there is nothing to look forward to because the present is so full. I could look at how much better a person I will be after this experience, but if that were my goal I would never attain it, having wasted time thinking and not doing--enjoying, hating, being bored and excited to their fullest. Then, as Thoreau put it, I will die knowing that I have truly lived (16).

A person experiences loneliness on the solo, and this is an opportunity as well as a trial. It is undoubtedly not a new experience, yet here the person has chosen to experience it in order to learn from it. Moustakas explains why a person might choose to confront a reality that so many people constantly struggle to avoid.

> Loneliness has a quality of immediacy and depth, it is a significant experience--one of the few in modern life--in which man communes with himself. And in such communion man comes to grips with his own being. He discovers life, who he is, what he really wants, the meaning of his existence, the true nature of his relations with others. He sees and realizes for the first time truths which have been obscured for a long time. His distortions suddenly become naked and transparent. He perceives himself and others with a clearer, more valid vision and understanding.
>
> In absolutely solitary moments man experiences truth, beauty, nature, reverence, humanity. Loneliness enables one to return to a life with others with renewed hope and vitality, with a fuller dedication, with a deeper desire to come to a healthy resolution of problems and issues involving others, with possibility and hope for a rich, true life with others.
>
> Loneliness keeps open the doors to an expanding life. In utter loneliness, one can find answers to living, one can find new values to live by, one can see a new path or direction. Something totally new is revealed (17).

These are the values of experiencing loneliness, all of which are certainly not derived from the solo, but Moustakas reveals the potential. It is an opportunity for reflection which, when coupled with total immersion in the natural world and the sharing of an intense experience with a few other seekers, can lead to the sort of insight into ill-being and its alternatives that Fromm regards as essential for coping with contemporary problems.

Fromm identifies two other qualities of the "New Man" that can be explored in the Thoreauvian Quest experience in general, and the solo in particular. One of these is the sensing of a oneness with life and decided that he could make the crossing. With a stout stick in hand for balance, he waded in and went across without mishap. Having done so, having conquered his fear and accomplished the necessary feat, he felt good. The experience reminded him of a lesson that he had been learning throughout the Thoreauvian Quest, and it was a lesson about responsibility. He realized that "ultimately I am responsible for my ideas and actions." An idea that he had read in Casteneda's Journey to Ixtlan came to him.

> Don Juan smiled and began humming a Mexican tune. "When a man decides to do something he must go all the way," he said, "but he must take responsibility for what he does. No matter what he does, he must know first why he is doing it, and then he must proceed with his actions without having doubts or remorse about them (19)."

This was an important insight for Dave. He testified to its importance several times in his journal and in follow-up conversations about his experience. It is an example of the type of insight that can come from such an experience, an insight that can have great ramifications later when a person returns to the routines of normal life.

The purpose of Thoreauvian Quest is not to provide an escape, but an opportunity for insight that can be valuable in meeting the challenges of normal life. It is, as has been said, an educational program which might help a person to understand that there are other ways of being than those which they are used to. And there may be better ways. Dave once again provides an illustration. After his return from the wilderness, he observes the speed with which everyone goes about their business, and observes:

> Everyone is so wound up and concerned with time that they forget that it is made for them and not they for it. You go to a store and their main objective is to move you through and not to exchange words or feelings. I don't expect anything so big as personal histories or philosophy when I am buying a loaf of bread, but I do want to see some

> sign of humanness in my daily associations. There seems to be a fear that if one slows down he/she will have to face something horrible. Real human contact is seen as a dangerous endeavor. And this isn't the only rush job. Lack of exchange with people outside oneself is only a reflection of the lack of sensitivity to one's own thoughts and feelings. I don't know which comes first, preoccupation with time or fear of meeting oneself and others genuinely. One thing is for sure, with a little experience in slow living and reflection a person will always feel that that is how they should live (20).

Dave has experienced time in a new way while in the wilderness, and he is struck by the contrast with the "normal" relationship to time. He has, for a short time, lived in unhurried fashion where he enjoyed the opportunity to relate to his surroundings, be they human or other than human, in a deep and intimate way. He notes elsewhere in his journal that he enjoyed his reading in a way new to him, for he could concentrate on it without any distractions, without any compulsion to put the reading aside and go on about other business. Thus he claimed to derive more from reading, because he could follow the flow of ideas better and could meditate on these ideas to a degree that he had previously found difficult. Also, he experienced a patience that was new to him. He could spend hours observing wildlife, sitting motionless and watching bear, deer, or porcupine go about their business. Again he felt no compulsion to move on to other things. His awareness of his surroundings, in short, was related to his experience of time, and that awareness was sharper, in his opinion, than it had ever been before.

All of this is not to say that David or the others who engage in a workshop like Thoreauvian Quest will return to their normal lives and retain the qualities that they have experienced in the field. But they do have something to compare their lives with, to check their experience against. And perhaps they understand Fromm's concept of "being mode" and go about attempting to bring their lifestyles into that mode. Perhaps too they recognize that their action must go beyond the purely personal ordering of life to the broader social context, where they will work for social change that will help in solution to the problems which concern people like Fromm.

Thoreauvian Quest is Experiential Humanistic Environmental Education. It uses a specific type of experience to achieve specific environmental education objectives, such as understanding of person-as-nature, increased perceptual awareness, value clarification and change, and humanism. It is humanistic in the sense that the essence of the experience is the person's growth, which he or she facilitates largely on his or her own. The instructor sets up the experience and is present as a helper, a provider of support when it is needed. But the participants are cast onto their own resources and are free to explore their own path. They are placed in a new environment, one which is often alien to them and even threatening, and are provided with resources such as support and skill training that allow them to successfully cope with the challenges they find there. The experience is modified to meet their needs, the instructor constantly monitoring their progress, and insuring as much as possible that they are challenged, but not taken beyond their limits. Everyone is encouraged to make their feelings known to their fellow participants or to the instructor, and the importance of doing so is stressed. Everyone tries constantly to be accepting and not judgmental. The nature of the experience is perhaps best captured in these few lines by Allen Drengson (21).

Total Immersion

Baptism in a new life style,
submersion in a River,
Being reborn and coming aware
of other conscious locations.
Changing perspectives, shifting ideals,
needs reduced to near zero;
Autonomy born within the soul
releases spirits' creations.
Become a centered harmony
of self and world together.

These two programs, the environmental education curriculum at Huxley College and the Thoreauvian Quest workshop, illustrate how EHEE might appear, how experience and humanism may be brought together to address environmental education objectives. Other examples appeared as illustration throughout discussions of humanistic and experiential education and complement these examples offered at some length in this chapter. All of these examples, taken together, should indicate how the EHEE connection can be made.

Footnotes

Chapter VIII

1. J. William Pfeiffer and John E. Jones. A Handbook of Structured Experiences for Human Relations Training, Vol. 1 (Iowa City, Iowa: University Associates Press, 1972), 122 pp.

2. Robert W. Marans, B. L. Driver and John C. Scott, Youth and the Environment (Ann Arbor, Michigan: Institute for Social Research, 1972), p. I-1.

3. Alan Millar and Diane Cornell, "Atlantis." (Unpublished paper, Western Washington University, 1979), pp. 2-3.

4. Isaiah 40:3-5; Matthew 4:1.

5. Henry David Thoreau, Walden (New York: The Modern Library, 1937), p. 81.

6. Ibid., pp. 81-82.

7. Ibid., p. 7.

8. Ibid., p. 33.

9. Ibid., p. 42.

10. E. F. Schumacher, Small is Beautiful (New York: Harper and Row, 1973), p. 30.

11. Ibid., p. 31.

12. Thoreau, Walden, p. 83.

13. Schumacher, p. 35.

14. Erich Fromm, To Have or To Be (New York: Harper and Row, 1976), p. 176.

15. Ibid.

16. David McGavock, "Thoreauvian Quest Journal," (Unpublished paper, Western Washington University, 1978), p. 55.

17. Clark E. Moustakas, Loneliness (Englewood Cliffs, New Jersey: Prentice-Hall, 1961), p. 102.

18. Fromm, p. 176.

19. Carlos Casteneda, Journey to Ixtlan (New York: Simon and Schuster, 1972), p. 62.

20. McGavock, p. 57.

21. Alan Drengson, "Total Immersion," (Unpublished, University of Victoria, 1977).

SECTION III

All that has been discussed to this point has provided a brief description of the macroproblem to which environmental education is a response and suggestions as to the form that effective environmental education might take. The intention has been to describe humanistic and experiential learning as necessary elements of environmental education and to present arguments in support of this contention. What remains to be done, of course, is to describe precisely how these elements can be incorporated into environmental education in a systematic way at all stages of a person's learning experience. The complete treatment of this applied dimension of the model presented is beyond the scope of this paper. A few general suggestions as to how people interested in making the EHEE Connection might proceed can and will be made in this concluding section. The complete task of describing in detail how the EHEE Connection might contribute to attainment of environmental education objectives must occur in another work.

CHAPTER IX

SUGGESTIONS FOR MAKING THE EHEE CONNECTION

If an educator has read this study to this point and believes the arguments have some merit, he or she may hope for suggestions as to how to begin to make the EHEE Connection. What procedure might be followed in adapting an existing curriculum or creating a new curriculum to address environmental education objectives with an integrated cognitive-affective-experiential approach? Some general guidelines may be suggested, though a definitive discussion of the question will require book length treatment that reviews in depth the many resources that might be used.

What might individuals do who wish to utilize the EHEE approach in their work? Several suggestions can be made that will be useful in a variety of contexts. The obvious first point is that aspirants should experience humanistic education and experiential learning as a first step toward understanding them. Undoubtedly most people have experienced them at various times but not with the awareness and analytical stance of a potential practitioner.

In the first case, humanistic education, a search should be undertaken for programs offered under that rubric. Workshops, courses, and other means are available to those interested in learning about humanistic education. Several organizations that provide such programs are as follows:

National Humanistic Education Center, 110 Spring Street, Saratoga Springs, N.Y. 12866. The Center offers programs ranging from a Master's Degree to workshops and consultation on values clarification, creative problem-solving, peer counseling and humanistic curriculum development.

Center for Humanistic Education, Norman Hall, University of Florida, Gainesville, FL 32061. It engages in humanistic education research and helps interested people and groups to humanize their educational efforts.

Development and Research in Confluent Education, Department of Education, University of California, Santa Barbara, CA 93106. This university program works to bring the knowledge and techniques of the human potential movement into the traditional curriculum. They engage in teacher training and curriculum development.

These are just three sources of exposure to humanistic education. There are others throughout the United States. Lists of organizations and periodicals may be found in Read and Simon's Humanistic Education Sourcebook, and Canfield and Wells's 100 Ways to Enhance Self-Concept in the Classroom (1). The National Humanistic Education Center has recently published The First Catalogue for Humanizing Education which contains over 700 entries with detailed descriptions of books, tapes, films, curriculum packages, articles and resources for humanistic and affective education organized around 40 categories. This exhaustive resource is up to date, which is important in this field, for much work is constantly being done in many locations. The Catalogue contains resources that aspirants can tap in their search for humanistic educational experience.

At the same time that one is experiencing a humanistic educational program, he or she should also be doing basic reading in the theory of the approach. The literature is vast, and recommended lists of books may be found in the sources just cited. Here are several suggestions that provide a good start:

Arthur W. Combs and Associates, Humanistic Education: Objectives and Assessment. (Washington, D.C.: Association for Supervision and Curriculum Development, 1978), 55 pp.

This short work provides an excellent, up-to-date overview of humanistic education. It succinctly states the goals and objectives of the field reviews briefly the situation relative to assessment and research, and presents a very useful checklist for humanistic schools. It is an excellent orientation to the scope of humanistic education.

Arthur W. Combs and Associates, Perceiving, Behaving, Becoming: A New Focus for Education. (Washington, D.C.: Association for Supervision and Curriculum Development, 1962), 256 pp.

This ASCD Yearbook has become a classic in the field and is a good introduction to the theoretical foundations of humanistic education. Four essays by "giants" in the field, Earl C. Kelly, Carl R. Rogers, Abraham Maslow, and Arthur Combs, open the volume and are used as bases for discussion of such topics as motivation, self-concept, creativity, personal adequacy, and valuing. This work explains in introductory fashion the rationales for the goals and objectives introduced in the first work, and expands upon them.

Carl R. Rogers, Freedom to Learn. (Columbus, Ohio: Charles E. Merrill Publishing Company, 1969), 358 pp.

Carl Rogers, a psychologist and educator, here describes his humanistic approach to teaching. He describes that approach in several contexts and explains the assumptions he makes, philosophy he works from, principles he follows, and the ramifications of his approach that he perceives. This book encourages a broadening and deepening of ideas introduced in the ASCD Yearbook.

Richard L. Curwin and Barbara Schneider Fuhrmann, Discovering Your Teaching Self: Humanistic Approaches to Effective Teaching. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975), 229 pp.

This book is intended for the practicing teacher and provides exercises through which that teacher can assess the humanism of his or her approach. Exercises allow one to clarify his or her values relative to teaching, to observe and analyze classroom behavior and attitudes, and to explore ways of humanizing classroom behavior as in grading, communicating feelings and assessing needs.

Robert R. Carkhuff, David H. Berenson, and Richard M. Pierce. The Skills of Teaching: Interpersonal Skills. (Amherst, Mass.: Human Resource Development Press, 1977), 206 pp.

This is a manual for improving in teachers and their students the specific interpersonal skills that comprise the core of humanistic education. It is a step beyond the assessment that occurs through use of Curwin and Fuhrmann's work, providing the educator who has assessed his or her teaching effectiveness with a carefully designed program for developing some of the skills of humanistic education that are needed.

These readings will give aspiring humanistic educators the foundation of ideas necessary to appreciate and understand their experience of humanistic education acquired in workshops and other settings. As has been noted several times in this study, a person cannot become a humanistic educator by following a recipe, adopting principles, or reading books about the approach. It requires commitment and understanding, and, as the Rogers' book in particular points out, it requires a philosophical stance that includes faith in the goodness and growth potential of human beings, and a willingness to trust them and to allow their freedom, which means relinquishing any inclination to control people that might be present. Humanism in education requires years to develop, but it can be learned, as Aspy and his colleagues have discovered (2). Any educator who aspires to achieve the Experiential Humanistic Environmental Education described in this paper must think long and hard about his or her conception of education. Roszak describes the scope of this task.

> I return to the ideal I raised when we discussed the possibility of an open childhood. A single word, an entire philosophy of education: Socrates speaking of himself as "midwife" to his students. *Midwife*--one who brings forth what is already there, waiting to be born: the hidden splendors of self-knowledge. That is where a personalist education begins, in this Socratic conviction that our first and highest object of study resides within. All there. Given. Teachers may offer information, know-how, technique, example. But until the student's innate calling declares itself, we have nothing but mimicry, memory work, superficial performance. It is only after we have tapped an authentic incentive that true education happens. Then, everything that lends depth and distinction unfolds before us--from the inside out. We have a mind that will seek out, interpret, invent. We have a life that makes its own purposes and takes on its own interesting texture (3).

Aspiring humanistic educators must follow the ancient maxim "Know Thyself," must identify and release this "authentic incentive" in themselves and so come to understand its presence in those they teach. When they have accomplished this, they are prepared to apply their insights in their educational leadership.

The second element in EHEE is, of course, experiential education, and the opportunities for experiencing and studying this process are less abundant than in the case of humanistic education. Barely three years ago, in 1977, a group of people interested in experiential learning met and formed a National Association for Experiential Education (4). This fledgling organization now offers its members a quarterly newsletter, a semi-annual journal, and an annual conference. The people who originally organized the association came largely from outdoor experiential education programs, such as Outward Bound, Inc. and its various adaptations. They came together because they were aware of a high degree of interest in many people in diverse localities and programs in this process they called experiential learning. People have joined who are interested in using the experiential learning process as a tool in juvenile corrections work, as a part of teacher education programs, and as a complement to classroom-based education at all levels. Some of the programs described at conferences and in publications have included the following:

Outward Bound, Inc.--People enroll in a course, the normal duration of which is three to four weeks, in which they are placed in situations, usually in the outdoors, which challenge them physically, mentally, and emotionally. Participants learn about the environments they live in but particularly gain insight into themselves as social and emotional beings. Several schools are located in the United States and offer special courses for educators interested in learning this approach. The national office of the non-profit corporation which operates these schools is Outward Bound, Inc., 165 West Putnam Ave., Greenwich, Connecticut 06830 (5).

Foxfire--A decade ago a young English teacher in rural Rabun Gap, Georgia, struck upon an idea which might break down the resistance to learning of his recalcitrant high school students. The idea was to study and write about local culture and to publish a student magazine on the subject. The process came to be called "cultural journalism" and the magazine was the now-famous Foxfire. The idea has been adapted by many schools as a potent experiential learning process.

> At the very heart of Foxfire is the conviction that students can learn about their community and about humanity only outside the classroom. In the classroom they can, with the help of their teachers and peers, examine, analyze, even celebrate what they've discovered, and compare their findings with those of others; but they must have the world outside the classroom as the primary motivation for learning, and at the heart and soul of what they learn (6).

This approach is well illustrated in the various Foxfire books and in Wigginton's book Moments. Workshops in the approach are offered, and information on activities around the Foxfire process is available through IDEAS, 11800 Sunrise Valley Drive, Reston, Virginia 22091.

Walkabout--Phi Delta Kappa's Task Force on Compulsory Education and Transitions for Youth recommended that the experiential learning process they called "walkabout," be experimented with in American secondary schools (7). The inspiration for the "walkabout" idea came from a film of that title which depicted a young Australian aborigine on the rite of passage from childhood to adulthood that tested his skill and courage. This young man saved the lives of two white children and provided an opportunity for reflection on the comparison between an educational experience for transition to adulthood like walkabout compared to the modern high school. Gibbons makes the comparison as follows:

> Imagine for a moment two children, a young native looking ahead to his walkabout and a young North American looking ahead to grade 12 as the culminating experiences of all their basic preparation for adult life. The young native can clearly see that his life will depend on the skills he is learning and that after the walkabout his survival and his place in the community will depend upon them, too. What meaning and relevance such a goal must give to learning!. . .The native's counterpart looks forward to such abstractions as subjects and tests sucked dry of the richness of experience, in the end having little to do directly with anything critical or even significant that he anticipates being involved in as an adult--except the pursuit of more formal education (8).

Gibbons suggests that an experience analogous to the walkabout but appropriate to the life and times of the modern American high school student could be designed. It could contain elements of logical inquiry, creativity, volunteer service, adventure, practical skills, the world of work, and cognitive development (9). And it not only could, but does, for a number of attempts are being made to incorporate the idea into secondary education. Examples include programs at Mountain Open High School in the Jefferson County Public Schools west of Denver, Colorado; and East-Manual High Schools in Denver itself; North Central High School in Indianapolis, Indiana; and the Ames High School Action-Learning Program at Ames, Iowa. These and other secondary schools are experimenting with the walkabout concept. Information on the location of current experiments with the walkabout concept may be acquired from Phi Delta Kappa, Eighth Street and Union Avenue, Box 798, Bloomington, Indiana 47401.

These three examples of experiential education programs illustrate opportunities available to educators interested in exploring ways and means of implementing experiential learning in their curricula. By contacting the national Outward Bound offices, IDEAS, Inc., and Phi Delta Kappa, people may acquire information as to where and when workshops in these approaches are being offered and participate in them. It must be emphasized that these are by no means the only worth while experiments in experiential learning that are occurring. They are only well-developed illustrations.

As for reading that would be helpful to the aspiring experiential educator, the literature is rather sparse and cannot be organized in the progressive pattern possible with the literature of humanistic education. There are, however, a few suggestions that can be made:

James S. Coleman, "Differences Between Experiential and Classroom Learning," in Morris T. Keeton and Associates, Experiential Learning: Rationale, Characteristics, and Assessment. (San Francisco: Jossey-Bass, 1976), pp. 49-61.

This brief essay describes experiential learning as clearly as anything in the literature and compares it to its necessary complement, information assimilation.

Arthur W. Combs and Associates, Perceptual Psychology: A Humanistic Approach to the Study of Persons. (New York: Harper and Row, 1976), 492 pp.

The ninth chapter, "Learning: Differentiation of Personal Meaning," is particularly helpful in understanding the importance of experience in learning. The entire book is worthwhile and really necessary to the fullest understanding of the recommended chapter, but the ninth chapter is central.

Harold Howe, II, "The Role of Experience in Education," (paper presented at the Conference on Experiential Education, Estes Park, Colorado, October, 1974), 15 pp.

Howe ranges widely through the subject of experiential education, arguing why it is particularly important in the current world. His review of rationales for experiential is brief but clear and useful.

Methodological works:

A number of publications provide instruction in how to facilitate experiential learning. Among useful ones are: Reldan S. Nadler, Instructor's Guide to a Confluent Education Program: Outdoor Adventure Programs (Isla Vista, CA: published by the author, 6543 El Colegio Road., #104, Isla Vista, CA 94017, 1977), 44 pp.: David Wolsk, An Experience-Centered Curriculum: Exercises in Perception Communication and Action. (Paris: The UNESCO Press, 1975), 52 pp.

These readings, coupled with participation in experiential learning programs, should broaden the educator's understanding of the experiential element of EHEE. As noted at the beginning of the discussion, everyone has experienced "learning by doing." By experiencing it in an analytical way and with the idea of using the approach, one will certainly acquire greater insight into the approach. Then it is simply necessary to venture forth to experiment with mixing experiential learning with information assimilation in such a way as to optimally achieve the educational goals of the curriculum.

The final element in EHEE is, of course, environmental education itself. As described in this study, the other two elements become environmental education when they are directed toward achievement of environmental education objectives. What would be lacking if only the processes of humanistic and experiential education were brought together without environmental focus would, of course, be the goals and substance of environmental education. Thus to be an environmental educator a person must know something about the environment, its problems, and ideas as to how those problems might be solved. This study has come full circle because it began with a brief review of those problems. What suggestions might be made to the person seeking to acquire the facts and concepts necessary to becoming an environmental educator?

It is impossible to conclusively answer this question here, for as was noted earlier the environmental macroproblem is of great scope, and there is by no means complete agreement as to the elements and dimensions of the problem. Still, the content and substance of environmental education are comprised of facts and concepts about the environment, so the environmental educator must adopt a conceptual framework from which to build an environmental education curriculum. Most such frameworks have so far been derived from the work of Roth, who identified and ranked concepts of importance to what he called "environmental management education (10)." Dean Bennett and his associates in the Maine Environmental Education Project, for example, identify the "Big Ideas" of environmental education, and these include attitudes, skills and teacher roles, and *concepts* (11). They note that their concepts are not new but are "a synthesis and reorganization of concepts which in most cases have been identified and are being taught in the separate disciplines (12)." They note that environmental education is not a subject area but an "emphasis and a way of teaching (13)." This whole study that is being concluded here focuses on the "way of teaching" part, but the importance of the emphasis on environmentally significant content must not be underestimated.

No conclusive list of concepts will be offered here. The reader is referred to Roth or to Bennett, also to Saveland (14) and Harvey (15). The concepts identified in these studies can be placed in context by reading the works of Miller (16), Dasmann (17), Ophuls (18), Brown (19), and the numerous other authors writing about environmental problems. The prospective environmental educator must be interdisciplinary, bringing the perspectives of various disciplines simultaneously to bear on the task of understanding concepts and problems.

Many colleges and universities offer both undergraduate and graduate programs and courses in environmental studies (20). Most offer courses and workshops through continuing education which are often designed specifically for the would-be environmental educator. Many environmental education curriculum development projects offer workshops in the methods necessary for effective utilization of curriculum materials. Whenever a teacher discovers useful curriculum materials, it is advisable to inquire as to the availability of training in their use.

An educator or group of educators who decides to implement an EHEE curriculum must, in addition to pursuing personal growth and development along these lines, also often work within the educational system to create conditions suitable for the adoption of such a curriculum. As noted in chapter four there exist constraints, particularly in public education systems, which must be overcome. Stapp has described a step-by-step process by which an environmental education curriculum can be established in a school system (21). The process he describes might be adapted to suit a variety of situations.

In conclusion of this chapter it must be admitted that establishment of EHEE on any broad scale is not an immediate prospect if only because of the breadth of preparation necessary for it. But in addition to that, all three elements herein described are controversial and not in the current mainstream of educational theory and practice. Still, there are powerful if relatively small currents of thought and practice flowing in the directions described in this paper, and anyone who is convinced of the importance of working in these directions described will find abundant companions and resources with which to undertake the adventure.

Footnotes

Chapter IX

1. Donald A. Read and Sidney B. Simon, eds., Humanistic Education Sourcebook (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975), pp. 469-478; Jack Canfield and Harold C. Wells, 100 Ways to Enhance Self-Concept in the Classroom (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1976), pp. 235-243.

2. David N. Aspy and Flora N. Roebuck, Kids Don't Learn from People They Don't Like (Amherst, Mass.: Human Resource Development Press, 1977), p. 46.

3. Theodore Roszak, Person/Planet (Garden City, New York: Anchor Press/Doubleday, 1978), p. 187.

4. Association for Experiential Education, Box 4625, Denver, Colorado 80204. Its journal is The Journal of Experiential Education.

5. For a comprehensive review of studies of Outward Bound programs, see Arnold Shore, Outward Bound: A Reference Volume (Greenwich, Conn.: Outward Bound, Inc., 1977), 584 pp.

6. Elliot Wigginton, Moments: The Foxfire Experience (Reston, Va.: IDEAS, 1975), p. 5.

7. Maurice Gibbons, The New Secondary Education: A Phi Delta Kappa Task Force Report (Bloomington, Indiana: Phi Delta Kappa, Inc., 1976), 199 pp.

8. Maurice Gibbons, "Walkabout: Searching for the Right Passage from Childhood and School," Phi Delta Kappan, May, 1974, p. 597.

9. Ibid., p. 9.

10. Robert E. Roth, "Fundamental Concepts for Environmental Management Education (K-16)," in Clay Schoenfeld, ed., Outlines of Environmental Education (Madison, Wis., Dembar Educational Research Services, Inc., 1971), pp. 65-74.

11. Dean B. Bennett and Wesley H. Willink, K-6 Environmental Education Teachers Guide (Yarmouth, Maine: Yarmouth School Department, 1975), p. I-1.

12. Ibid., p. I-2.

13. Ibid.

14. R. N. Saveland, ed., Handbook of Environmental Education (New York: John Wiley & Sons, 1976), pp. 1-67.

15. Gary D. Harvey, "Environmental Education: A Delineation of Substantive Structure," (Unpublished Ph.D. Dissertation, Southern Illinois University, 1976), 284 pp.

16. G. Tyler Miller, Jr., Living in the Environment: Concepts, Problems, and Alternatives, 2nd Edition (Belmont, CA: Wadsworth Publishing Co., Inc., 1979), 380 pp. and supplements.

17. Raymond Dasmann, Environmental Conservation, 4th Edition.

18. William Ophuls, Ecology and the Politics of Scarcity (San Francisco: W. H. Freeman and Company, 1977), 302 pp.

19. Lester R. Brown, The Twenty-Ninth Day (New York: W. W. Norton & Company, Inc., 1978), 363 pp.

20. See Clay Schoenfeld and John Disinger, Environmental Education in Action-II: Case Studies of Environmental Studies Programs in Colleges and Universities Today (Columbus, Ohio: ERIC Clearinghouse for Science, Mathematics, and Environmental Education, 1978), 499 pp.

21. William B. Stapp, "Development, Implementation, and Evaluation of Environmental Education Programs (K-12)," (The University of Michigan, 1973), 39 pp. (mimeographed); with Ellen VandeVisse, "Developing a K-12 Environmental Education Program," in Noel McInnis and Don Albrecht, eds., What Makes Education Environmental? (Louisville, Kentucky: Data Courier, Inc., 1975), pp. 93-107.

CHAPTER X

SUMMARY AND CONCLUSION

This study has argued that environmental problems occur because people decide to act in their world in ways harmful to it and to themselves. Such decisions occur because people are in some cases ignorant of the consequences of their choices for themselves and their environment. They are not aware of the alternatives open to them because they have learned to choose, to value, in specified ways which they do not question. This being so, education has a fundamental role to play in addressing environmental problems. It can replace ignorance with awareness and knowledge. It can help people to recognize environmental problems and their direct and indirect effects upon themselves as biological and social organisms. It can motivate them to seek realization of an ecological ethic, to incorporate into their decision-making a set of behavioral limits which they agree to live within for the benefit of the environment and its inhabitants.

Education is not the whole solution. Science and technology must move ahead with continued efforts to ameliorate human environmental impact through understanding and intervention. Law and administration must provide direction and control while the long-term efforts of science, technology, and education are undertaken. But in the end, the efforts of people who seek to directly intervene in the millions of micro-decisions that comprise a society's orientation toward the world and reflect its ethos will depend on education for success in maintaining environmental quality.

The study argues also for specific elements of that education. It suggests that humanism, a deep caring for other people, is essential to effective environmental education. Perhaps a humanistic ethic is prerequisite to an ecologic ethic. Humanism in environmental education is also necessary, it is argued, because it contributes to effective education, and the most effective education possible seems necessary for coping with the complex problems that comprise the world macroproblem.

An argument is also made for systematic utilization of the "learning by doing" approach in environmental education. It is suggested that experience of the concepts and skills important to understanding of the environment and to coping with its problems may be necessary though not sufficient for effective environmental education. Learners must realize that what they study in environmental education is of relevance to their lives and not just another academic subject. It is suggested that experience is necessary to effective establishment of this personal meaning.

What is presented here is a model of environmental education and a rationale for it. It is a proposal that is offered as a possible basis for action in the field of environmental education. It is comprised of generalizations and principles. No claim is made that the model has been tested. It provides fertile soil for investigators who might find in it hypotheses, the investigation of which will contribute much to progressive development of the field of environmental education. That field is still in its infancy. It is in need of theory which might unify diverse generalizations and principles that have come from many sources. As indicated at the beginning of the study, there is even disagreement about the nature of the problem to which environmental education is a response. The approach to environmental education suggested here is offered humbly in hopes that it contributes to increased understanding of the nature of the task facing environmental educators. It is intended as a starting point for extensive further investigation, both for its author and hopefully for other scholars in the field. The detailed work of testing the theory presented here must now begin.

> We stand at a crossroads in the history of our species. In a special way it is like the crossroads at which the primate stood when he was compelled to leave his tree existence. And yet it is also quite unlike any previous experience of the species. While the creature who had been driven from his home in the trees had millions of years in which to adjust to new and danger-filled surroundings, we have been thrown by violently-accelerated technological development into a situation in which we must make our choice with the utmost quickness and must choose deliberately, not haphazardly as always before. It was during the last generation that our civilization reached the critical threshold. We may have but a single generation in which to gain control over our collective conduct and to keep our world from becoming one of those where evolution tested the possibilities of mind--and failed.
>
> We are moving over the narrowest isthmus of time, guided by knowledge bursting with risks. We can no more quit ourselves of it than we can leap over our own shadows. Individuals may spurn development, species cannot. The relevant question is, how we make use of our knowledge.
>
> An intelligent being who gradually increases his resources of knowledge probably always runs the risk of being so impressed by how much he knows that he loses sight of how much he doesn't know at all. Limited knowledge and limitless ignorance are equally responsible for man's predicament. Now, when we are on the way to becoming the victims of our own successes, we have had an almost electrifying reminder of our knowledge's limitations. We have discovered how easily mistakes can be made. We begin to suspect that in the future even the slightest mistakes may have catastrophic consequences.
>
> Up to now we have used our knowledge to try to "master" nature. We cannot accomplish this, and we are beginning to realize it. The test that remains is to try to master ourselves (1).

Footnotes

Chapter X

1. Rolf Edberg, At the Foot of the Tree (University, Alabama: The University of Alabama Press, 1971), pp. 142-143.

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